

Kildavin WwTP Natura Impact Statement

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Executive summary

Uisce Éireann are intending to progress upgrades to the Kildavin Wastewater Treatment Plant (the "Proposed Development"). The treatment plant is located south of Kildavin village, County Carlow, approximately 30km south-east of Carlow Town. The upgrades are intended to provide appropriate sewage treatment for Kildavin now and in the future, as the existing wastewater network is overloaded and not meeting Uisce Éireann discharge targets. The upgrades comprise of works to Kildavin Wastewater Treatment Plant itself in addition to the construction of a new discharge line along the R724 and L2027 to pump effluent to a new outfall point in the River Slaney.

Screening for Appropriate Assessment was undertaken for the Proposed Development and concluded that likely significant effects (LSEs) from the Proposed Development on European sites could not be excluded in the absence of mitigation measures. This Natura Impact Statement (NIS) has been prepared to support the Appropriate Assessment (AA) process for the Proposed Development.

LSEs were identified for one European site: the Slaney River Valley SAC (site code: 000781), which directly overlies the Proposed Development as the proposed new outfall discharges directly into the Slaney River. The Slaney River Valley SAC is designated for seven habitats and eight species of qualifying interest. LSEs were identified for one of the QI habitats (Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation) as a result of habitat degradation due to changes in water quality. Seven of the eight species of qualifying interest were also found to have the potential for LSEs (freshwater pearl mussel, sea lamprey, brook lamprey, river lamprey, twaite shad, salmon and otter) as a result of habitat loss, habitat degradation, disturbance and mortality.

Mitigation measures were identified to avoid or minimise the effects of the Proposed Development on the Slaney River Valley SAC. These mitigation measures include the presence of an on-site Ecological Clerk of Works to carry out pre-construction surveys and give Toolbox talks; measures to prevent pollution via accidental spills; minimising potential disturbance by limiting lighting and works areas; isolating the dry works area; using appropriate silt fences; where avoidance is not possible the treatment or removal of invasive species in the works area prior to groundbreaking; and obtaining two derogation licences for potentially disturbing otter and bats, both of which have been received. As such the assessment concluded no adverse effects on the integrity of any European sites from the Proposed Development alone.

The Proposed Development was also considered in-combination with other plans and projects, including the Carlow County Development Plan 2022-2028 and Wexford County Development Plan 2022-2028. The results of the in-combination assessment concluded that there were no effects resulting from other plans or projects that could act in-combination with the Proposed Development to cause adverse effects on the integrity of any European sites.

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Glossary of Terminology, Abbreviations and Acronyms

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Term, Abbreviation or Acronym	Description
AA	Appropriate Assessment
AESI	Adverse Effects on Site Integrity
BSI	British Standards
CCTV	Closed-Circuit Television
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology And Environmental Management
CO	Conservation Objectives
CSO	Combined Sewer Overflow
cSAC	Candidate Special Area of Conservation
D&B	Design and Build
DHLGH	Department Of Housing, Local Government and Heritage
DoEHLG	Department Of Environment, Heritage and Local Government
EC	European Commission
EEA	European Environment Agency
EIAR	Environmental Impact Assessment Report
ELV	Emission Limit Values
GWDTE	Ground Water Dependent Terrestrial Ecosystem
IFI	Inland Fisheries Ireland
IROPI	Imperative Reasons of Overriding Public Interest
km	Kilometre
LSE	Likely Significant Effects
MIFI	Member Of The Institute Of Fisheries Management
m	Metre
mm	Millimetre
MRSB	Member Of The Royal Society Of Biology
NBDC	National Biodiversity Data Centre
NIS	Natura Impact Statement
NPAD	National Planning Application Database
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
OPR	Office of The Public Regulator
PE	Population Equivalent
pSPA	Potential Special Protection Area
QI	Qualifying Interest
SAC	Special Areas of Conservation
SEPA	Scottish Environmental Protection Agency
SPA	Special Protection Areas
SWO	Storm Water Overflow
TII	Transport Infrastructure Ireland
UÉ	Uisce Éireann

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WFD	Water Framework Directive
WwTP	Wastewater Treatment Plant
ZoI	Zone of Influence

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1. Introduction

1.1 Background

This Natura Impact Statement (NIS) has been prepared to support the Appropriate Assessment (AA) process for the upgrades to the Kildavin Wastewater Project (the "Proposed Development"). Jacobs was engaged by Uisce Éireann (UE) to prepare an Appropriate Assessment Natura Impact Statement (NIS) in support of the Proposed Development.

The Kildavin wastewater treatment plant (WwTP) is located to the south of Kildavin village, which is located 30 km south-east of Carlow Town. The current wastewater structures are still within their predicted life expectancy however UE seek to upgrade the existing wastewater network due to it being overloaded and not meeting UE discharge targets. The current agglomeration load is 241 population equivalent (PE) with the capacity of the WwTP being 242PE (30-year design horizon 350PE). The objective of this Proposed Development is to provide appropriate sewage treatment for Kildavin now and in the future. This is in line with UE's objectives to provide an appropriate capacity and quality of treatment to enable development, while minimising the negative impacts of discharging to the environment.

UE have identified a preferred route option for the Proposed Development. This option will require upgrades to the WwTP. This will include construction of a new storm tank, a new sludge tank, all associated pumps, laying of a new 1.4 km rising main pipe in road and a new outfall headwall at a new primary discharge point on the banks of the River Slaney. The Proposed Development is presented in Figure 1.1 below.

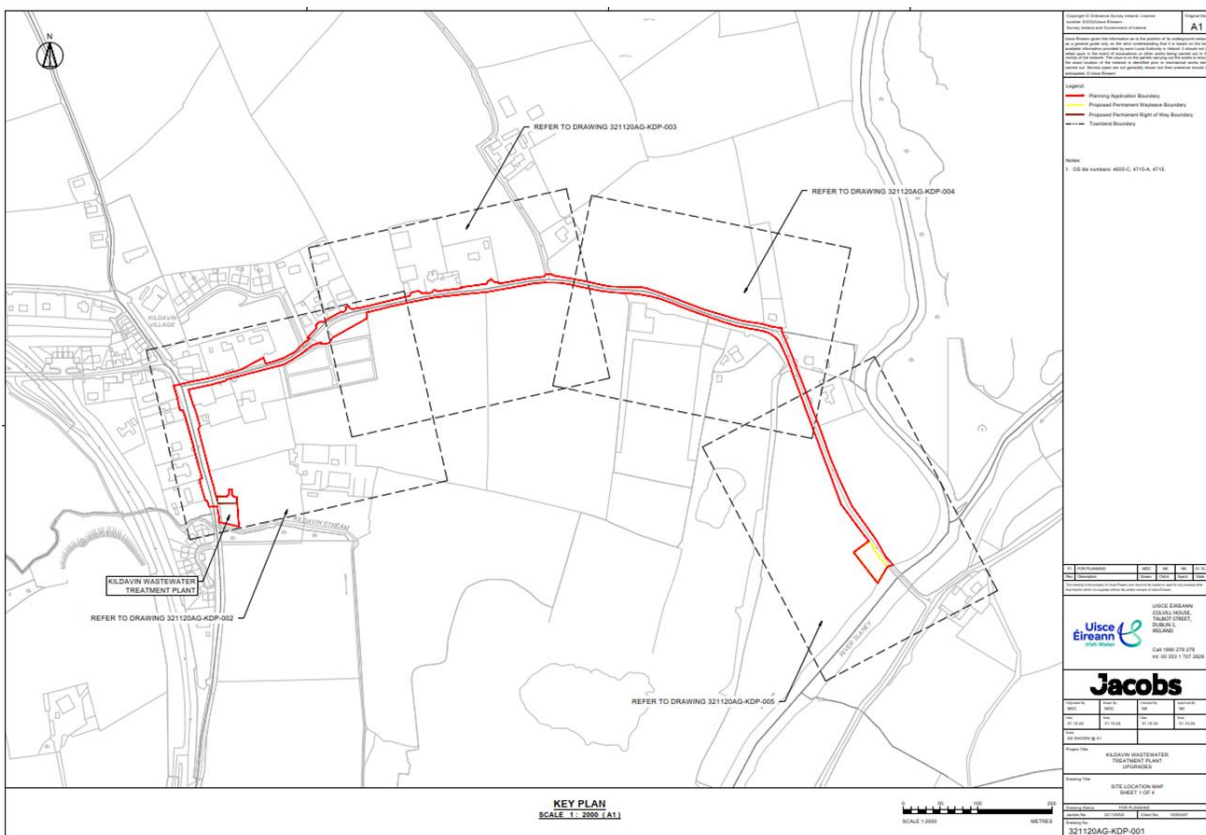


Figure 1.1. Location and route of Proposed Project. The red line indicates the pipeline route, running from Kildavin WWTP to the proposed new outfall located on the riverbank of River Slaney.

The Proposed Development will comprise of the replacement of WwTPs inlet works and addition of CSO screening, sludge tank, pumps and a final effluent pumping station with the existing WwTP footprint. The Proposed Development will retain the existing aeration tank and clarifier while demolishing the existing treatment works. A new final settlement tank will be installed to work in parallel with the existing clarifier.

There will be laying of a 1.4 km rising main within the R724 and L2027 roads. This rising main will cross arable land to a new outfall discharge point. This rising main is intended to discharge at a new outfall headwall on the banks of the River Slaney which will be approximately located at the following grid reference: S 89896 59694. During the construction of the new outfall headwall a dry working area of approximately 5 m by 2 m will be required within the River Slaney.

Jacobs' ecologists undertook a Screening for Appropriate Assessment (AA) of the Proposed Development. The screening identified the potential for likely significant effects (LSEs) on one European sites: Slaney River Valley Special Area of Conservation (SAC) from the Proposed Development, therefore progression to AA was required to assess the potential for adverse effects on the integrity of the European site identified at screening. The scientific assessment in support of the AA is documented within this NIS, which contains the information required for the competent authority (in this instance Carlow County Council) to undertake an AA in respect of the Proposed Development. It should be noted that since the completion of the Screening for AA further information has become available and so the scope of the NIS includes the screening outcomes and recent field survey data. Consequently, one further QI for the Slaney River Valley SAC has been included. The site survey in March 2024 recorded stands of Himalayan balsam (*Impatiens glandulifera*) a Third Schedule species close to the proposed outfall location. One stand of immature Himalayan balsam was found directly adjacent to the outfall location upstream (689830.3, 659702.9) and measured approximately 20 m x 50 m. The second stand was also immature at the point of survey and was found 12 m downstream from the proposed outfall location (689820.7, 659696.8), and the infestation covered an area of 10 m x 20 m.

1.2 Purpose and structure of this report

1.2.1 Informing Appropriate Assessment Screening

In the context of Article 6(3) of the Habitats Directive and Section 177U(1) of Planning and Development Act 2000 (as amended), Carlow County Council as the competent authority for this project, must carry out an Appropriate Assessment (AA) of the Proposed Development to assess whether, on the basis of objective scientific information, the Proposed Development, individually or in-combination with other plans or projects, is likely to have a significant effect on the conservation objectives of any European sites and the mitigation measures required to prevent adverse effects on site integrity. This report presents the information required for the competent authority to undertake the AA for the Proposed Development.

1.2.2 Legislative context

Habitats and species of European importance are provided legal protection under Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (hereafter referred to as the Habitats Directive) and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (hereafter referred to as the Birds Directive). The Habitats Directive protects habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as the Natura 2000 network (hereafter referred to as European sites, as the term Natura 2000 network was replaced by 'European site' under S.I. No. 473 of 2011 – European Union (Environmental Impact Assessment and Habitats) Regulations 2011). European sites comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Candidate SACs (cSACs) and potential SPAs (pSPAs) are afforded the same protection as SACs and SPAs and are therefore assessed in the same manner within this AA Screening Report.

The Habitats Directive has been transposed into Irish law by Number 30 of 2000 - Planning and Development Act, 2000 (as amended) and S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011 (hereafter referred to as the Birds and Habitats Regulations). Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites.

Article 6(3) establishes the requirement for AA:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

Article 6(4) states:

"If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted."

The Habitats Directive was transposed into Irish law from a planning perspective through Part XAB of the Planning and Development Act 2000 (as amended). The circumstances under which an AA is required, the stages of that assessment which must be undertaken and the responsibilities of the Competent Authority in considering whether or not to approve consent for proposed plans or projects are outlined in the Act.

Section 177U(1) states that:

"A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site."

Where likely significant effects upon a European site are predicted, or cannot be ruled out, it is the responsibility of the Competent Authority to undertake an AA under Article 6(3) of the Habitats Directive, informed through an Natura Impact Statement (NIS), to determine whether or not the proposed plan in combination with any other plan or project would adversely affect the integrity of a European site in light of its Conservation Objectives.

Section 177T(1) states that:

"(a) A Natura impact report means a statement for the purposes of Article 6 of the Habitats Directive, of the implications of a Land use plan, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites."

"(b) A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites."

Section 177T(2) states that:

"Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites."

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1.2.3 Case Law

A number of cases have been brought to both the national and European courts in relation to the AA process. Therefore, relevant case law, European Court of Justice rulings and EC publications have also been considered in the preparation of this Screening for AA.

1.2.4 Stages in Appropriate Assessment

The purpose of Screening is to identify whether, activities associated with plans or projects¹, either acting individually or in-combination with other plans or projects result in likely significant effects (LSEs) on any European sites. All potential effects between activities associated with the plans or projects and the ecological components of European sites must be considered. This includes potential effects on mobile species, notably birds, mammals, invertebrates and migratory fish using functionally linked land outside the designated boundary of the European site.

If the prospect of LSEs occurring cannot be excluded on the basis of objective information, the plan or project is taken forward to the next stage of the process, Appropriate Assessment (AA). At Screening, the burden of evidence is to show, on the basis of objective information, and beyond reasonable scientific doubt, that the proposed plan or project will have no LSEs on a European site. If LSEs cannot be excluded, or it is uncertain, it would trigger the need for AA. An overview of the Appropriate Assessment process is outlined below:

- Stage 1 Screening: Screening determines whether an AA is required by determining if the project or plan is likely to have a significant effect on any European site(s) either individually or in-combination with other plans or projects, in light of the site's conservation objectives.
- Stage 2 Appropriate Assessment: If the screening has determined that AA is required, the competent authority then considers the effect of the project or plan on the integrity of the European site(s), specifically it must be determined if the project or plan will adversely affect the integrity of a European site(s) either individually or in-combination with other plans and projects in view of the conservation objectives of the site(s). Where potential adverse effects on site integrity (AESI) are identified, mitigation measures are proposed to avoid adverse effects, as appropriate. For projects, the AA process is documented within a NIS.

Following AA, including mitigation proposals, if AESI remain, or uncertainty remains and the project/plan is to be progressed, an Assessment of Alternative Solutions is required under the provisions of Article 6(4) of the Habitats Directive. This process examines the alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. If no alternatives exist, or all alternatives would result in adverse effects on the integrity of a European site, then if the project/plan is to be progressed, the process moves to the next stage.

Where an Assessment of Alternative Solutions fails to identify any suitable alternatives, for a project or plan to be progressed it must demonstrate that there are Imperative Reasons for Overriding Public Interest (IROPI).

If, following an assessment of IROPI, it is deemed that the project or plan can proceed, compensatory measures must be secured to maintain the coherence of the European site network despite adverse effects to the integrity of the site(s).

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1.2.5 Authors Qualifications and Expertise

This report has been prepared by Martina Caplice and reviewed by Dr Susie Coyle.

Martina Caplice is at time of writing a Senior Ecologist at Jacobs and holds a Bachelor's degree in Agricultural Science (Hons), a Masters in Environmental Science and a Walsh Fellowship Research Masters in Agricultural Science from University College Dublin. Martina is a published ecological researcher with over 13 years' experience of field surveys and environmental sampling techniques in Ireland, USA and Kenya. Martina has contributed to several reports including AA Screening Reports, Natura Impact Statements, and invasive species reports has carried out multiple field surveys for protected species and habitats on a variety of large and small infrastructure projects.

The report was checked and reviewed by a Senior Associate Director of Ecology. Dr Susie Coyle holds a BSc (Hons) in Aquatic Bioscience and a PhD in fish biodiversity from the University of Glasgow. She is a Chartered full Member of the Royal Society of Biology (MRSB), a full Member of CIEEM and a Member of the Institute of Fisheries Management (MIFI). Susie has coordinated Jacobs' ecologists both in Ireland and in the UK and has experience of multiple ecological survey techniques and associate reporting. She has sixteen years of consultancy experience in aquatic and terrestrial ecology with over 20 years' experience of field surveys and environmental sampling techniques. One of Susie's main roles is the check and review of reports including AA Screening reports and Natura Impact Statements.

1.3 Structure of this report

This report provides information to support the relevant competent authority in undertaking Appropriate Assessment of the Proposed Development.

The structure of the report is as follows:

- **Section 1:** Introduction including legislative context and the authors experience.
- **Section 2:** Description of Proposed Works in detail
- **Section 3:** Methodology used for the assessment
- **Section 4:** Baseline characteristics.
- **Section 5:** Conclusion of Screening for Appropriate Assessment.
- **Section 6:** Information for Appropriate Assessment including information on European sites, potential impacts, and mitigation measures where required.
- **Section 7:** Mitigation measures.
- **Section 8:** Assessment of in-combination effects with other plans and projects.
- **Section 9:** Conclusion in relation to adverse effects on European site integrity.
- **Section 10:** References.

This report is to be read in full, with no excerpts to be representative of the findings. This report has been prepared exclusively for Jacob's client and no liability is accepted for any use or reliance on the report by third parties. This report has been prepared on the basis of best scientific knowledge and data made available at the time of writing. Where assumptions have been necessary, these are clearly outlined.

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2. Description of the Proposed Development

The Kildavin WwTP is located 23 km southeast of Carlow Town. The WwTP is located to the south of Kildavin village. Upgrades are required to the existing facility due to it being overloaded and not meeting its discharge targets to UE standards.

The Proposed Development route option will include the replacement of the existing inlet works and addition of a new storm tank with SWO (Storm Water Outflow) screening, sludge tank, welfare facility and a final effluent pumping station within the existing WwTP footprint. The Proposed Development will retain the existing aeration tank and clarifier while demolishing the existing treatment works.

The upgrades proposed at the existing Kildavin WwTP will be contained within the existing site boundary, as shown in the image below (Figure 2.1). In addition, the pipeline route and red line boundary for the Proposed Development is shown in Figure 2.2. The Kildavin WwTP can be accessed using the existing access road, no further infrastructure is proposed to accommodate access.

The works at the treatment plant are summarised below:

- Construction of a new pumping station (17m²) including wet well, valve chamber and flow meter chamber;
- Construction of new storm water tank with an effective storage of 116m³ and a total storage of 154m³ and provision of a pumped return to the inlet works;
- Construction of a new sludge tank with an effective storage of 35m³ and a total storage of 36m³;
- Construction of a Control Kiosk and a Wet Kiosk;
- The demolition of the existing welfare facility (approximately 7m²) and construction of a replacement welfare facility (approximately 33m²);
- From the new pumping station at the existing WwTP, the construction of a new discharge line comprising of the following is required along the R724 and the L2027 as well as within agricultural land to pump effluent to a new outfall point on the River Slaney:
 - 110mm (SDR17) Rising Main for 488 metres (m) containing a number of chambers and valves:
 - 2 no. Scour Chambers;
 - 2 no. Rodding Chambers;
 - 4 no Accompanying Valve Chambers;
 - 1 no. Air Valve; and
 - Header Manhole at termination point of Rising Main to accommodate transition to Gravity Main; and
 - 225mm Gravity main for 924m containing 12 no. manholes between the header manhole on the Rising Main and the new outfall point on the River Slaney; and
- New proposed outfall point at the River Slaney comprising a new concrete headwall.

The existing aeration tank and clarifier at the WwTP will be retained while all other treatment works will be demolished and removed from site. The existing outfall to the Kildavin Stream will also remain but connected to the proposed new storm water tank to act as an additional outfall from the WwTP in times of storm weather.

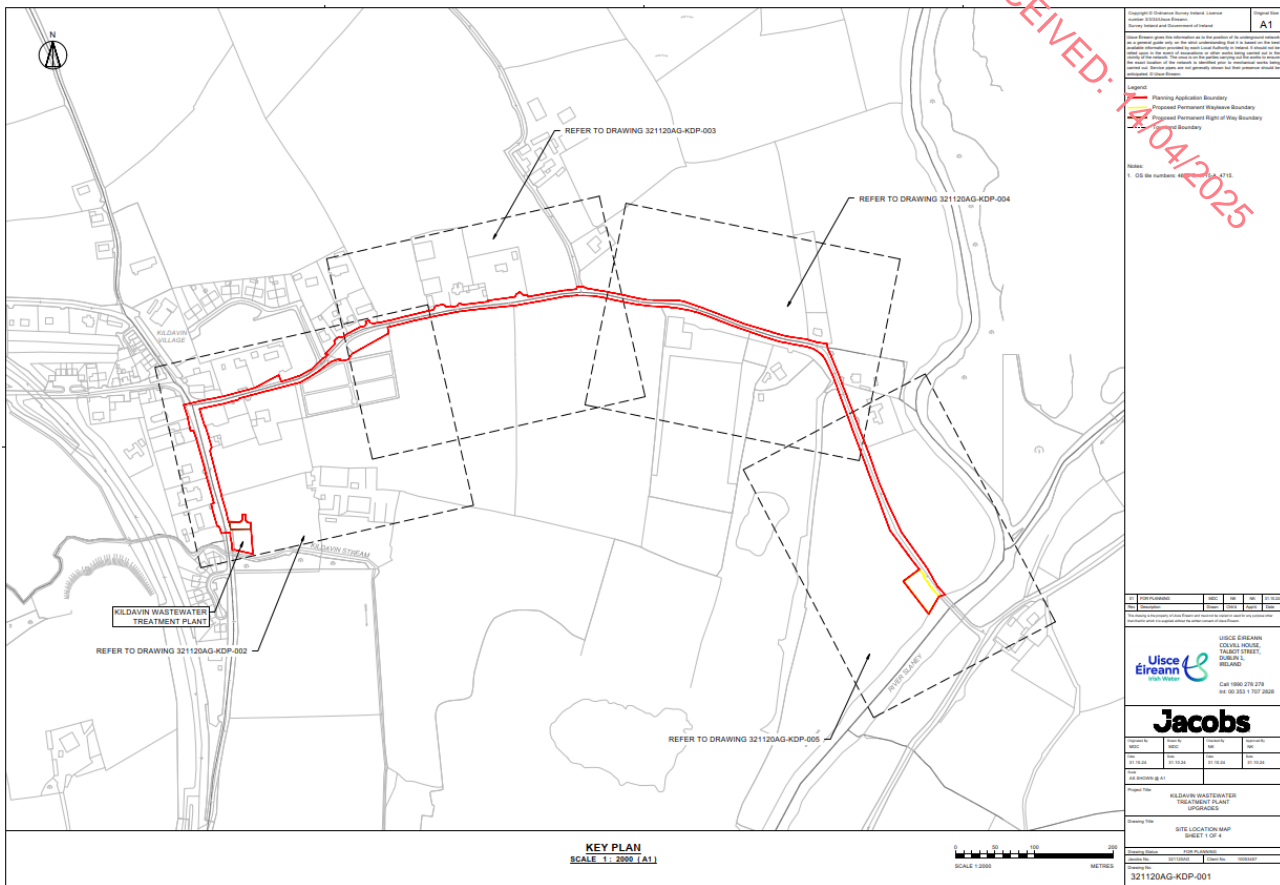


Figure 2.2. Proposed pipeline route and red line boundary for Proposed Development

2.1.1 Construction Methodology

To accommodate the construction of the proposed storm tank and pumping station there will be excavation required on the existing Kildavin WwTP site. The excavation will be completed using a 360 excavator and the surplus materials arising from the works will be disposed of off the Site in strict adherence to licensing and permitting requirements, and in accordance with the detailed Construction Environmental Management Plan (CEMP) which will be prepared by the appointed Contractor.

2.1.1.1 Storm tank

The proposed circular tank 7 m internal diameter and 5 m deep circular tank will have the following elements:

- The tank base will be made up with in-situ concrete over a 75 mm concrete blind. The thickness of the base slab and its reinforcement shall be calculated at D&B (Design and Build) stages structural design.
- The slab will be benched with a 1:100 slope towards the sump where the return pumps sit.
- The tank walls will be made up of segmental precast panels. The wall joints (panel to panel) shall be filled with a waterproof mortar. The inside interface of the tank will be coated with epoxy resin for durability.
- The wall panels shall be embedded in the base slab at least 250 mm and sealed with an elastomeric joint compound and water-stop. Panels with pipe passes will be reinforced for that purpose.
- The tank cover will be flush with ground level and have access covers.

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2.1.1.2 Pumping Station

The pumping station is comprised of 4nr pre-cast concrete chambers. The construction method for these chambers is summarised below.

- 3.75 m deep x 3 m diameter excavation will be made using a 360 excavator to accommodate the pumping station wet well;
- 3 m deep x 3 m diameter excavations will be made to facilitate the valve chamber, flow meter chamber and isolation valve chamber;
- The walls of the chambers will be made of precast concrete manhole rings. The bottom of these sections are to be embedded into the base concrete at least 75 mm and sealed with an elastomeric compound as are the joints between rings; and
- All chambers' bases will be made of an in-situ concrete slab over a 75 mm concrete blind. The thickness of the base slab and its reinforcement shall be calculated at D&B stages of structural design.

2.1.1.3 Sludge Tank

The sludge tank is comprised of a 2nr pre-cast units. The construction method is summarised below:

- 100 mm of topsoil stripped back to facilitate pouring 3 m wide x 7 m long x 0.25 m deep concrete plinth;
- Base of pre-cast unit to be placed on plinth, base unit dimensions of 2.88 m wide x 5.7 m long;
- Top of pre-cast unit to be placed on base, top unit dimensions of 2.88 m wide x 5.7 m long; and
- Existing sludge connection from settlement tank to be restored in new pre-cast unit.

2.1.1.4 Control Kiosk and Wet Kiosk

The control and wet kiosk are both prefabricated units that will be placed on concrete plinths. The construction method is summarised below:

Control Kiosk

- 100 mm of topsoil stripped back to facilitate pouring 1.5 m wide x 2.3 m long x 0.25 m deep concrete plinth;
- 1.5 m wide x 2.3 m long x 1.7 m deep prefabricated kiosk unit to be placed on concrete plinth; and
- Connection to be made to existing site electrical service.

Wet Kiosk

- 100 mm of topsoil stripped back to facilitate pouring 0.8 m wide x 1 m long x 0.25 m deep concrete plinth;
- 0.6 m wide x 0.9 m long x 1.58 m deep prefabricated kiosk unit to be placed on concrete plinth; and
- Connection to be made to existing site clean water service.

2.1.1.5 Welfare Facility

The existing Welfare Facility is to be demolished and replaced by a new Welfare Facility consisting of a prefabricated unit that will be placed on a concrete plinth. The construction method is summarised below:

- 100 mm of topsoil stripped back to facilitate pouring 3.61 m wide x 10.5 m long x 0.25 m concrete plinth;
- 3.61 m wide x 10.22 m long x 2.85 m deep prefabricated kiosk unit to be placed on concrete plinth; and
- Electrical, water and wastewater connections to be restored. Alarm connections to be restored also.

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2.1.1.6 Pipeline – Discharge Line

The Proposed Development involves the construction of approximately 1.4 km of buried pipework and will generally be constructed in public roads for over 90% of its length, with the remainder in open agricultural land. This pipeline terminates into a proposed outfall into the River Slaney through a proposed pre-cast headwall placed on the River Slaney bank.

The pipeline is comprised of the below elements:

- 488 m of new 110 PE SDR17 (97.1 mm) rising main with a number of chambers and valves on the new rising main as estimated below:
 - 2 no. scour chambers;
 - 2 no. rodding chambers and 4 no. accompanying valve chambers;
 - 1 no. air valve.
- New header manhole at termination point of proposed rising main to accommodate the transition to the new gravity sewer.
- 924 m of new 225 PE SDR17 (198.5 mm) gravity sewer with 12 no. manholes between the header manhole and the new outfall to the River Slaney.
- Outfall to the River Slaney with a new concrete headwall.

The works within the road surface will require excavation to a depth of 4 m at the deepest point, with a trench width of 0.75 m. The works within the agricultural land will be to a maximum depth of 3.75 m, with a trench width of 0.75 m.

Open cut construction technique for pipeline installation will be used at all locations.

The sequence for open cut construction will include the following:

- Earthwork Excavation
 - The trench will be excavated by suitable excavator plant and equipment with manual cleaning for the bottom of the trench. Where there is rock, a hydraulic hammer will be used. Where the excavated trench sides are unstable shoring will be provided. The trench will be excavated to the required formation level. The excavated soil will be segregated and stacked along the pipeline trench. The stack height will typically be 1.5 m.
- Pipeline Installation
 - The formation level, or trench bottom, will be prepared. Trenches will be kept dry to allow proper and safe bedding, laying, jointing of pipes and construction of the selected stone fill to side and over the pipes. Pipelines will be laid in accordance with manufacturer's instructions.
 - Excavation works may involve localised dewatering of the excavation area to facilitate the works. Dewatering will only be carried out to the extent necessary to keep the excavation dry during the works. Discharge points/locations shall be agreed in advance with the Local Authority, including Inland Fisheries Ireland, for the discharge of dewatered material. Desilting measures will be put in place and monitoring procedures established.
 - Backfilling of the pipe trench will commence as soon as possible after the pipe has been laid and firmly bedded in. Backfilling will continue to the required height, and reinstatement carried out. Materials used will be as per the below detail in Figure 2.3,

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requiring compliance with Transport Infrastructure Ireland specifications on compliant material. The trenches on the agricultural land will be reinstated with an appropriate topsoil and reseeded to suit the existing conditions.

All surplus materials arising from the works will be disposed of off the Site in strict adherence to licensing and permitting requirements, and in accordance with the detailed Construction Environmental Management Plan (CEMP) which will be prepared by the appointed Contractor.

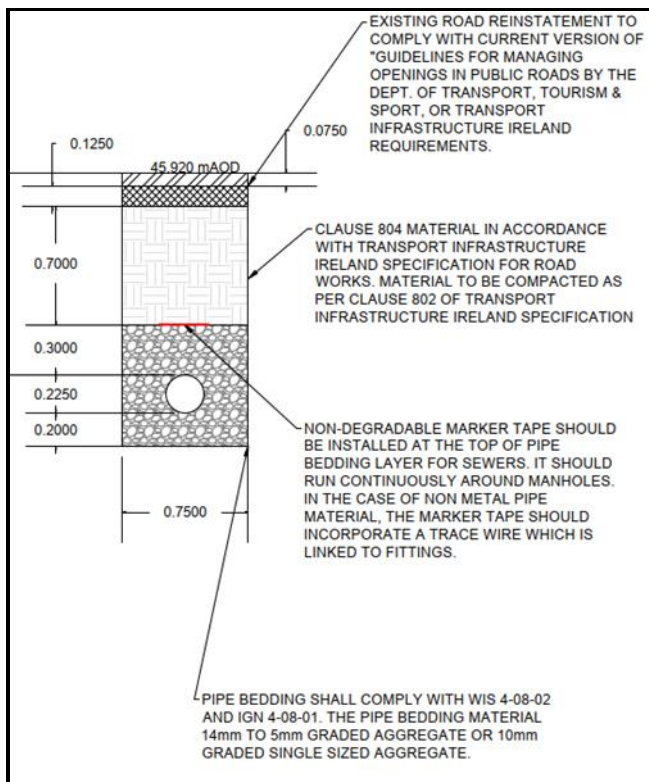


Figure 2.3. Trench backfilling detail

2.1.1.7 Outfall Point

The proposed outfall location is at grid reference S 89896 59694. The proposed working area on the agricultural land is as shown below in Figure 2.4. This 0.125ha area is required to accommodate all pipe laying on the agricultural land in addition to the placement of the pre-cast concrete headwall on the River Slaney bank (Figure 2.5).

The pipelaying on the agricultural land will require excavation to a depth of 3.75 m and will be constructed via open-cut construction as detailed in Section 2.1.1.3 above. To accommodate the placement of the pre-cast headwall an excavation to a depth of 1.5m will be required on cross sectional area of 2m. The placement of the proposed pre-cast headwall will require a dry area to be created using steel sheet piles which will be pressed into place, creating a dry area (i.e. cofferdam) of 5 m x 2 m (10 m²). Given the scale of this sheet piling proposed, a Still Worker pile press will be utilised to minimise the noise and vibration produced in both installing and extracting.

The agricultural land will be accessed via the existing L2027 local road. The working area will have a topsoil area stripped and temporary granular surface put in place to accommodate plant traversing the working area. Once the works are complete the topsoil will be appropriate replaced and reinstated. The pipelaying works will

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require excavation along the pipe length, requiring reinstatement of the ground conditions via reseeding. Reseeding will also be required in the area surrounding the proposed location of the pre-cast headwall.

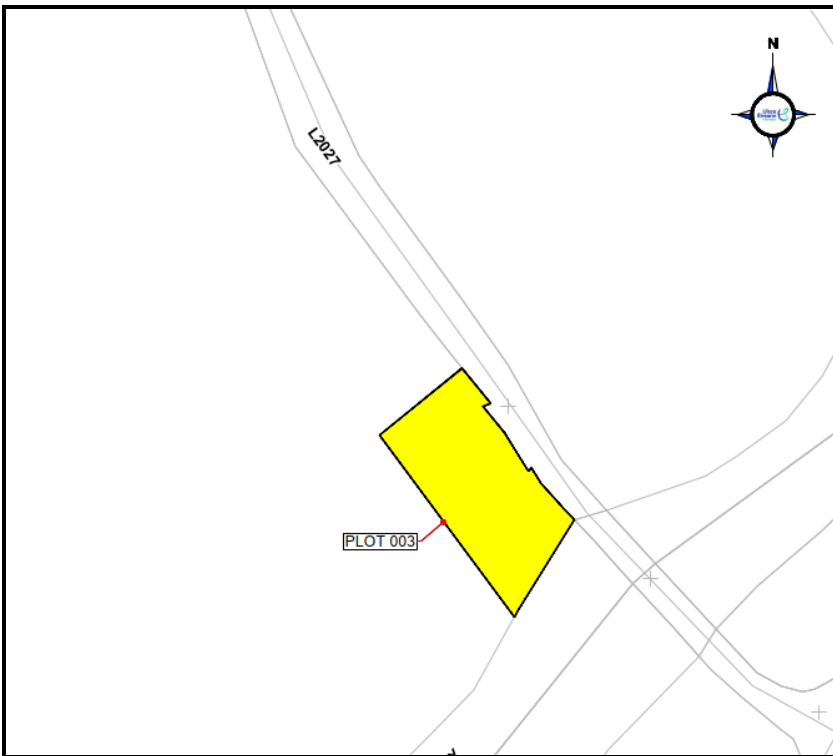


Figure 2.4. Working area for works on agricultural land by the River Slaney.

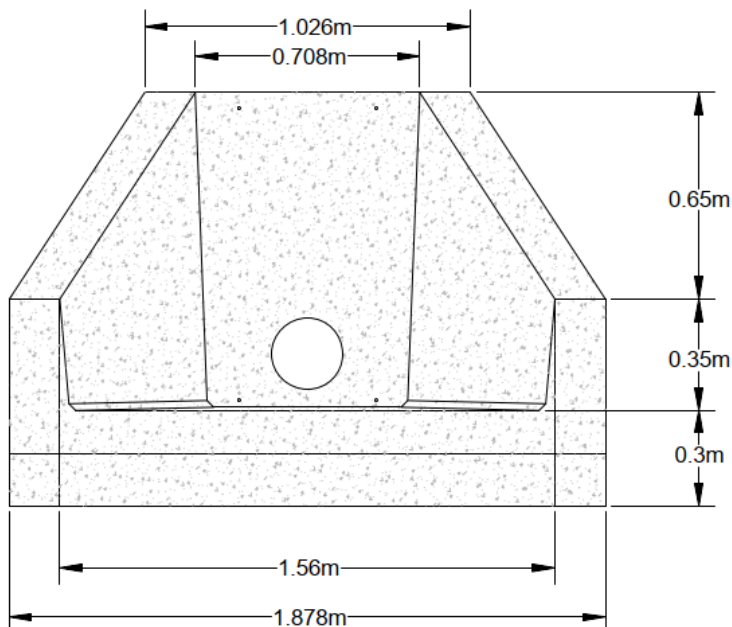


Figure 2.5. Example of pre-cast headwall

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2.1.1.8 Access

The existing Kildavin WwTP and agricultural area surrounding the proposed outfall can be accessed via the R724 and L2027 local roads, these arterial routes are accessible from the N80 national road by extension as shown in the below Figure 2.6.

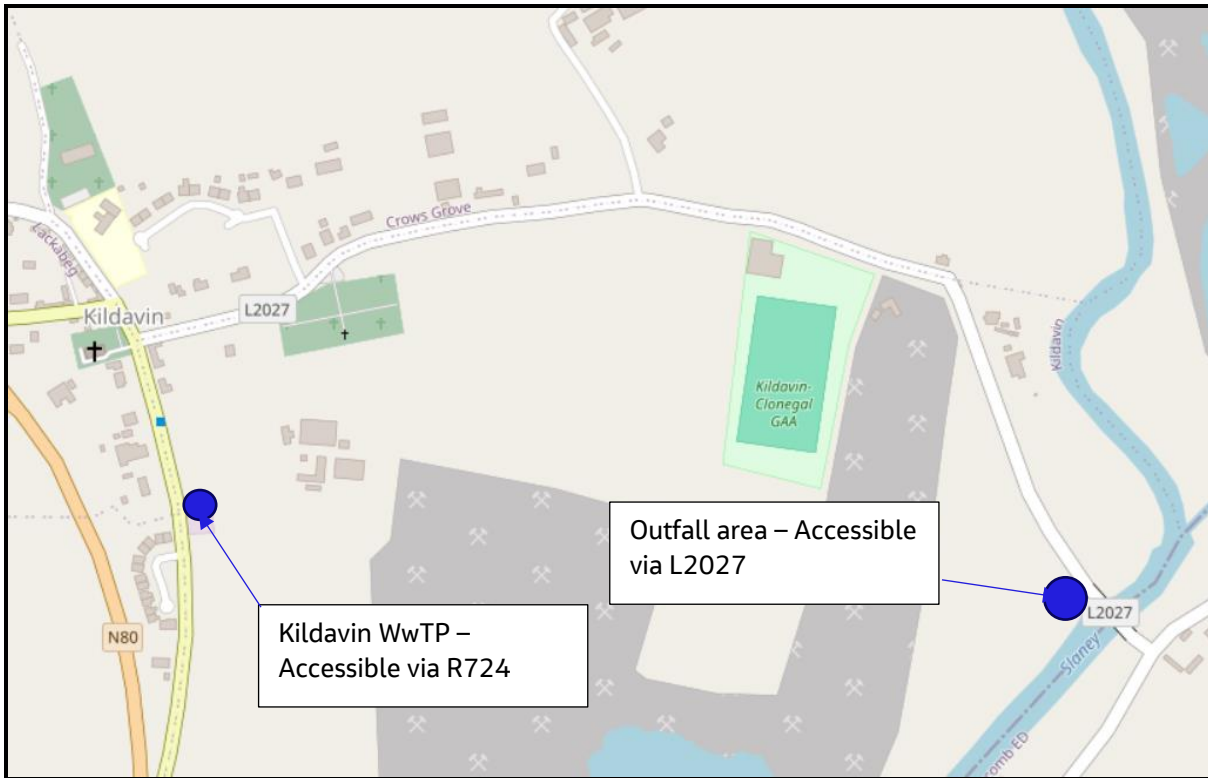


Figure 2.6. Site accessibility points

The Kildavin WwTP has existing road surfaces that support the trafficking of construction plant and delivery vehicles as needed. The area surrounding the outfall will require a temporary surface to accommodate construction as per Section 2.1.1.4, however the entire area will be reinstated and reseeded to meet pre-construction conditions.

2.1.1.9 Construction Plant and Equipment

It is anticipated that the construction of the Proposed Development will require some heavy equipment / machinery given the nature and scale of the works; for example, piling rigs, crawler, mobile cranes, dozers and dump trucks are the typical equipment / machinery required to undertake these works. These types of plant equipment will be transported to and from site on low-loader trailers pulled by HGVs.

Small plant equipment, such as mini-diggers, will also be required and these can be brought to and from site on trailers pulled by 4x4 vehicles.

2.1.1.10 Construction Traffic

During the construction phase of the Proposed Development, there is likely to be an increase in traffic locally due to construction traffic associated with the Proposed Development, such as deliveries of construction plant/equipment and materials as well as movements to and from the site by construction workers.

During the peak construction period, construction traffic is anticipated to be approximately five lorry movements per day, equating to on average, approximately 25 lorry movements per week, assuming a five-day working week. Such traffic movements will be required during the construction of works at the existing WwTP as well as the construction of the discharge line along the R724 and L2027.

It should be noted that the volume of construction traffic movements will increase and decrease in line with how the construction phase proceeds. For example, there is likely to be less construction traffic movements than average during the latter stages of the construction phase as the Proposed Development nears completion.

These movements will take place generally between Monday to Friday 07:30hrs to 19:30hrs, in accordance with best practice, as per the BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – noise (BSI, 2014).

2.1.1.11 Construction Phasing and Timing

The Construction Phase will last approximately 12 months. During the Construction Phase the works will be restricted to the following days and times:

- Monday to Friday – 7am to 7pm (main hours); and
- Saturday (8am to 2pm).

The works can be split into the below **primary phases**:

Phase 1: Wastewater Treatment Plant.

- Works on the WwTP are anticipated to require 6 months to complete.

Phase 2: Pipelaying works in public road and agricultural land.

- Pipelaying works are anticipated to require 6 months to complete.

Phase 3: Outfall and headwall construction

- Placement of pre-cast headwall and supporting works are anticipated to take 1 week to complete.

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3. Assessment Methodology

3.1 Guidance documents

NIS was undertaken in accordance with the following guidance:

- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01.
- Appropriate Assessment of Plans and Proposed Projects in Ireland. Guidance for Planning Authorities (Department of Environment, Heritage and Local Government (DoEHLG), 2010).
- Assessment of Plans and Projects in Relation to Natura 2000 Sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC, 2021a)
- Communication from the Commission on the Precautionary Principle (EC, 2000).
- Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission (EC, 2007).
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2019).
- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC, 2021b).
- Guidance on the strict protection of certain animal and plant species under the Habitats Directive in Ireland (Department of Housing, Local Government and Heritage (DHLGH), 2021).

3.2 Appropriate Assessment methodology

Following screening and where the potential for LSEs has been identified the assessment is progressed to the next step, known as Stage 2 AA.

Stage 2 AA is a focused and detailed examination, analysis and evaluation carried out by the competent authority of the implications of the plan or project, alone and in-combination with other plans and projects, on the integrity of a European site in view of that site's conservation objectives. Case law has established that such an Appropriate Assessment, to be lawfully conducted, in summary:

(i) must identify, in the light of the best scientific knowledge in the field, all aspects of the proposed development which can, by itself or in-combination with other plans or projects, affect the conservation objectives of the European site;

(ii) must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps; and

(iii) may only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of the identified potential effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to stage three and, if necessary, stage four.

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The process is shown in Figure 3.1 below:

Consideration of plans and projects affecting Natura 2000 sites

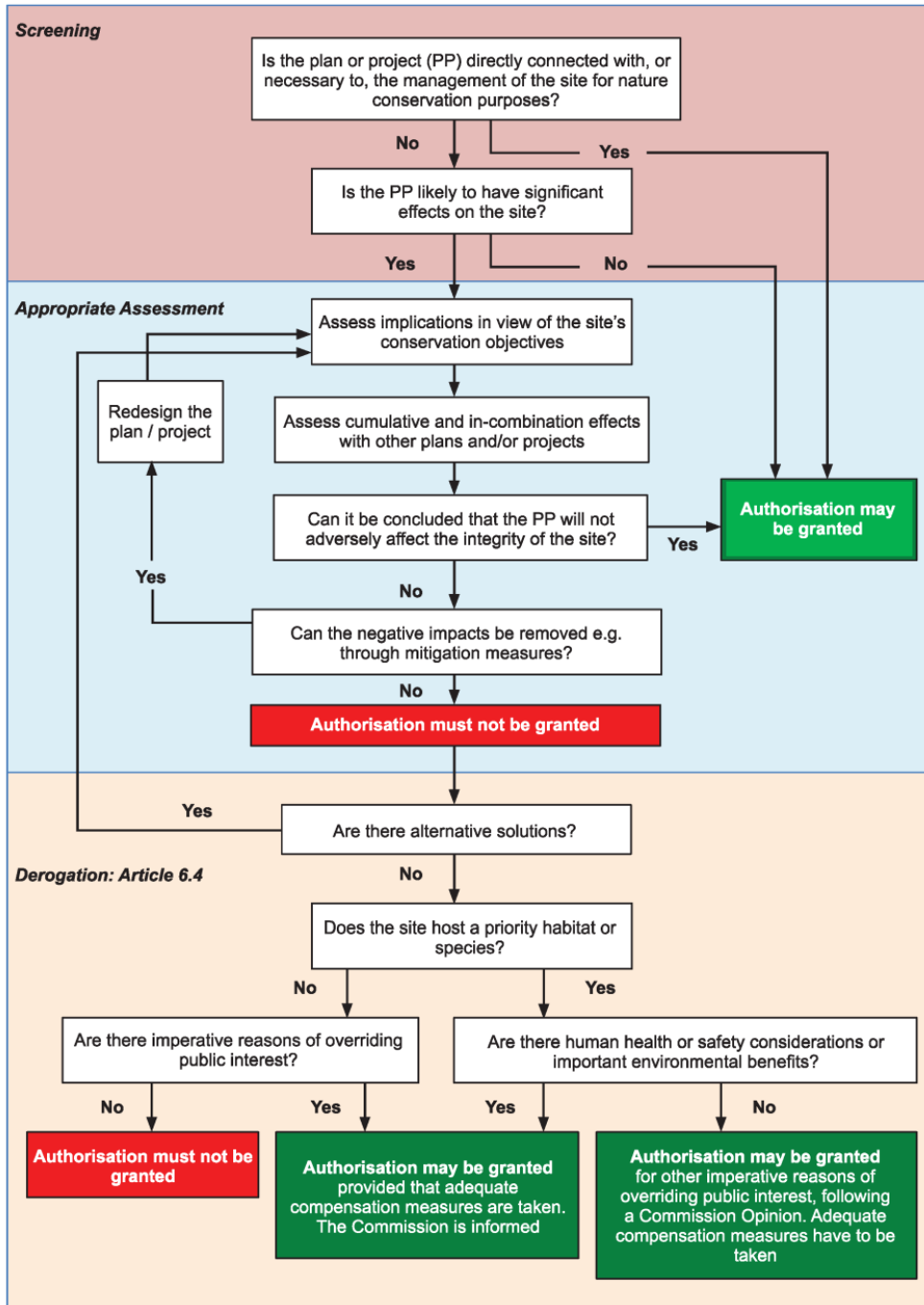


Figure 3.1: Flow chart of Article 6 (3) and (4) procedure (EC, 2018).

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3.3 Desk Review

A desk-based review was conducted in January 2023 and updated on 9 October 2024. The following key resources were analysed to inform the baseline description of the Proposed Development site and surrounding environment:

- Aerial imagery (Google Earth; ESRI, 2023) (accessed October 2024);
- Environmental Protection Agency (EPA) rivers and water quality data, Water Framework Directive (WFD) status (accessed 2024) (EPA, 2023);
- National Parks and Wildlife Service (NPWS) Mapping of European site boundaries (accessed October 2024) (NPWS, 2023a and b);
- Projects from the National Planning Application Map Database (NPAD) (accessed October 2024 (DHLGH ND));
- The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview (NPWS, 2019a);
- The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments (NPWS, 2019b);
- The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments (NPWS, 2019c);
- Other open-source information available online regarding fisheries (e.g. www.salmonireland.com and www.fishingireland.info); (accessed October 2024)
- Online data available on Natura 2000 sites as held by the NPWS, including the Natura 2000 network Data Form; Site Synopsis; Generic Conservation Objective data (accessed October 2024); and
- Protected and invasive species data from the NBDC database (accessed October 2024), (NBDC ND).
- Other open-source information available online regarding fisheries (accessed 2024) (e.g. www.salmonireland.com and www.fishingireland.info).

3.4 Site visit

The site surveys were carried out on 1 February 2023 and again on 20 March 2024 to inform the assessment are summarised in Table 3.1. Habitats were assessed for their potential to support qualifying interests (Annex I habitats or Annexed species) potentially associated with European sites. The assessment of species and habitats including invasive species was undertaken in line with the following guidelines and informed this NIS:

- A Guide to Habitats in Ireland. (Hereafter referred to as Fossitt) (Fossitt, 2000).
- Article 17 reports (NPWS, 2019a, 2019b, and 2019c).
- CIEEM Good Practice Guidance for Habitats and Species (CIEEM, 2021).
- CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018).
- CIEEM Guidelines for Preliminary Ecological Appraisal. Second Edition (CIEEM, 2017).

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- National Roads Authority (NRA) Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (NRA, 2010).
- Transport Infrastructure Ireland (TII) The Management of Invasive Alien Plant Species on National Roads, Standard (TII, 2020a).
- Transport Infrastructure Ireland (TII) The Management of Invasive Alien Plant Species on National Roads, Technical Guidance (TII, 2020b).

Survey dates are provided in Table 3.1 below:

Table 3.1: Ecological surveys informing baseline environment and examining potential effects on Annex I habitats and Annexed species.

Survey Methodology	Survey date(s)	Surveyors	Scope / method and equipment
Site walkover and invasive species survey	1 February 2023	Experienced Jacobs ecologists	The survey included walkovers within the existing Kildavin WWTP compound, along the proposed 1.4 km pipeline route and at the proposed outfall location at the River Slaney. The survey area extended 20 m either side of the Proposed Development area and included initial options routes options 3, 4a and 6. All areas were accessible by foot and surveyed via walkovers. The time of year was not optimal for recording most invasive plant species.
Site walkover survey, invasive species survey and watercourse assessment	20 March 2024	Experienced Jacobs ecologists	This survey was carried out along the River Slaney, with the intention of characterising the watercourse approximately 1 km downstream and 100 m upstream of the proposed new outfall. This included recording all invasive species found using the methodology of Section 3.1 and invasives recorded on the walkover survey are documented in this report. The locations and extents of all instances of non-native invasive plant species were recorded and mapped using field mapping software on iPads.

3.5 Consultation

To date, no consultation was undertaken as part of this assessment.

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4. Baseline characterisation

The results of the desk-based review and relevant field surveys are presented in the following sections. Photographs taken during the site visits are presented in **Appendix A** to give an overview of the habitats, species and watercourses/waterbodies within the vicinity of the Proposed Development. Descriptions below are in the past tense, to reflect their accuracy at a specific point in the recent past.

4.1 Overview of the Baseline Environment

The lands surrounding the Proposed Development mainly comprises of agricultural land (improved agricultural grassland GA1 and arable crops BC1) and much of the proposed pipeline is located on the R724 and L2027 roads (buildings and artificial surfaces BL3). The Proposed Development's new outfall will be into River Slaney.

The River Slaney is part of the Slaney River Vally SAC (000781) The average water depth of River Slaney, in the examined sections downstream and upstream of the proposed WwTP outfall, varied between 40 cm and >1 m, and the river width (including the wet width) varied approximately between 8 m and 20 m. The river flow was high along all the considered sections during survey. The river was mainly characterised by fast flows (varying for each section between 85% and 100%) and smaller areas of glide (varying between 0-5% for each section), slack (5% recorded in one section) cascade (varying between 0-5%for each section), and riffle (10% in one section). Substrate was generally not visible given the turbidity/depth of the water.

The left bank mainly comprised of by grass, with some areas of trees such as ash (*Fraxinus* spp.), alder (*Alnus* spp.), hazelnut (*Corylus avellana*), blackthorn (*Prunus spinosa*), ivy (*Hedera* spp.) and small areas covered with bracken (*Pteridium aquilinum*) and bramble (*Rubus* spp.) scrubs. The right riverbank was mainly characterised by grass and gorse (*Ulex europaeus*) scrubs, with some isolated trees. Both banks showed signs of erosion and undercutting, with more erosion and undercutting along even though these phenomena were more present on the right riverbank compared to the left. In some locations along the right riverbank a riparian fence had been installed and boulders were placed along the banks for stabilisation. Riparian vegetation was minimal and limited to scattered areas close to the riverbank. This was mainly comprised of emergent species such as hemlock water-dropwort (*Oenanthe crocata*) and irises (*Iris* spp.).

A wet woodland area was present at approximately 800-900 m from bridge, 10 m distant from the river (left riverbank). This area was characterised by sycamore (*Acer pseudoplatanus*), birch (*Betula* spp.), and alder trees. The substrate was flooded and covered with sediment and organic material.

An active quarry was located at approximately 100 m downstream from the proposed WwTP outfall and 17 m from the River Slaney.

Some trees located approximately at 800-900 m from the bridge, and one tree located in the immediate vicinity of the proposed WWTP had low to medium bat roost potential.

4.1.1 Habitats (Including Annex I)

No habitats of qualifying interest were identified in the desk-based review of the National Biodiversity Data Centre (NBDC). Several Article 17 habitats (including two QI habitat types associated with the Slaney River Valley SAC; Alluvial woodland, Old oak woodland), were found within 2 km of the proposed outfall (see **Appendix B, Figure B.2**). The closet old oak woodland [91A0] is approximately 1.8 km downstream of the proposed outfall location and is within the Slaney River Valley SAC. The closest alluvial woodland [91E0] is 868 m, 1.09 km hydrologically, upstream of the WwTP on the banks of the Kildavin Stream and is outside of the area mapped for the Slaney River Valley SAC. Habitats and flora within the site were classified using the Heritage Council's Guide to Habitats in Ireland (Fossitt, 2000).

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No QI habitats were recorded during the site survey in 2023 along the Proposed Development route and the surrounding area. The lands surrounding the Proposed Development mainly comprises of agricultural land (improved agricultural grassland GA1 and arable crops BC1).

The Kildavin WwTP is bordered by a treeline (WL2) of ash (*Fraxinus excelsior*) with a hedge understorey of beech (*Fagus sylvatica*) and bramble (*Rubus* sp.). An area of mixed broadleaved woodland is located to the south of the Kildavin WwTP and is separated from the WwTP by the Kildavin Stream_010. Large areas of improved agricultural grassland border the WwTP to the east and north. These fields are used for grazing horses.

The majority of the proposed pipeline is located on the R724 and L2027 roads (buildings and artificial surfaces BL3). These roads are adjacent to small areas of amenity grassland (GA2) within Kildavin Town and a small area of dry meadows and grassy verges (G2S), dominated by rapeseed (*Brassica napus*), thistle (*Cirsium* sp.) and perennial ryegrass (*Lolium perenne*). The L2027 road is bordered at points by stone walls (BL1) and treelines (WL2) of ash and beech.

4.1.2 Species (Including Annex II)

The desk-based review of the NBDC shown in Table 4.1 below returned low resolution records of the following species at 1 km and 2 km grid squares that overlay the study area.

Table 4.1: NBDC records of all protected species. (*Note QI species of the Slaney River Valley SAC are in bold)

Species Name	Scientific Name	Record Count	Date of Last Record	Distance of Closest Record to Site	Title of Data set	Designation
Common Frog	<i>Rana temporaria</i>	6	23/05/2015	475m	Amphibians and reptiles of Ireland	Protected Species: EU Habitats Directive: Annex V Wildlife Acts
Barn Swallow	<i>Hirundo rustica</i>	3	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Black-headed Gull	<i>Larus ridibundus</i>	3	12/01/2018	960m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Threatened Species: Birds of Conservation Concern- Amber List
Common Goldeneye	<i>Bucephala clangula</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex II Threatened Species: Birds of Conservation Concern - Red List
Common Grasshopper Warbler	<i>Locustella naevia</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species:

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						Birds of Conservation Concern - Green List
Common Kestrel	<i>Falco tinnunculus</i>	3	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Red List
Common Kingfisher	<i>Alcedo atthis</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive Annex I Threatened Species: Birds of Conservation Concern - Amber List
Common Linnet	<i>Carduelis cannabina</i>	3	01/01/2018	400m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Common Pheasant	<i>Phasianus colchicus</i>	6	30/05/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III
Common Pochard	<i>Aythya ferina</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III Threatened Species: Birds of Conservation Concern - Red List
Common Sandpiper	<i>Actitis hypoleucos</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Common Snipe	<i>Gallinago gallinago</i>	3	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III Threatened Species: Birds of Conservation Concern - Red List
Common Starling	<i>Sturnus vulgaris</i>	5	30/05/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Common Swift	<i>Apus apus</i>	1	31/12/2011	N/A, within	Bird Atlas 2007 - 2011	Protected Species:

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				2km grid square		Wildlife Acts Threatened Species: Birds of Conservation Concern - Red List
Common Wood Pigeon	<i>Columba palumbus</i>	7	30/05/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III
Eurasian Curlew	<i>Numenius arquata</i>	1	31/12/2011	990m	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex II Threatened Species: Birds of Conservation Concern - Red List
Eurasian Teal	<i>Anas crecca</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III Threatened Species: Birds of Conservation Concern - Amber List
Eurasian Wigeon	<i>Anas penelope</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III Threatened Species: Birds of Conservation Concern - Amber List
Eurasian Woodcock	<i>Scolopax rusticola</i>	3	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III Threatened Species: Birds of Conservation Concern - Red List
Goosander	<i>Mergus merganser</i>	5	30/05/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts EU Birds Directive: Annex II Threatened Species: Birds of Conservation Concern - Amber List
Great Black-backed Gull	<i>Larus marinus</i>	5	30/05/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Green List
Great Cormorant	<i>Phalacrocorax carbo</i>	5	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts

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Great Crested Grebe	<i>Podiceps cristatus</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Herring Gull	<i>Larus argentatus</i>	3	12/01/2018	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
House Martin	<i>Delichon urbicum</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
House Sparrow	<i>Passer domesticus</i>	7	30/05/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Lesser Black-backed Gull	<i>Larus fuscus</i>	4	12/01/2018	960m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Little Egret	<i>Egretta garzetta</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex I
Little Grebe	<i>Tachybaptus ruficollis</i>	4	09/01/2018	960m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Mallard	<i>Anas platyrhynchos</i>	7	06/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III Birds of Conservation Concern - Amber List
Mew Gull	<i>Larus canus</i>	4	12/01/2018	960m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List

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Mute Swan	<i>Cygnus olor</i>	4	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Northern Lapwing	<i>Vanellus vanellus</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex II Threatened Species: Birds of Conservation Concern - Red List
Northern Shoveler	<i>Anas clypeata</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III Threatened Species: Birds of Conservation Concern - Red List
Red Kite	<i>Milvus milvus</i>	1	30/05/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Red List
Rock Pigeon	<i>Columba livia</i>	3	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts EU Birds Directive: Annex II
Sand Martin	<i>Riparia riparia</i>	3	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Short-eared Owl	<i>Asio flammeus</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex I Threatened Species: Birds of Conservation Concern - Amber List
Sky Lark	<i>Alauda arvensis</i>	2	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List
Spotted Flycatcher	<i>Muscicapa striata</i>	2	30/05/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Amber List

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Stock Pigeon	<i>Columba oenas</i>	4	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Red List
Tufted Duck	<i>Aythya fuligula</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts EU Birds Directive: Annex II and Annex III Threatened Species: Birds of Conservation Concern - Amber List
Water Rail	<i>Rallus aquaticus</i>	1	31/12/2011	N/A, within 2km grid square	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts Threatened Species:
Whooper Swan	<i>Cygnus cygnus</i>	3	04/04/2020	990m	Birds of Ireland	Protected Species: Wildlife Acts EU Birds Directive: Annex I Threatened Species: Birds of Conservation Concern - Amber List
Yellowhammer	<i>Emberiza citrinella</i>	8	30/05/2020	390m	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern - Red List
Basil Thyme	<i>Clinopodium acinos</i>	2	02/08/2019	289 m	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Protected Species: Flora Protection Order Threatened Species: Near threatened
Common Lizard	<i>Zootoca vivipara</i>	2	29/04/2015	990m	Amphibians and reptiles of Ireland	Protected Species: Wildlife Acts
Daubenton's bat	<i>Myotis daubentonii</i>	1	02/09/2008	90m	National Bat Database of Ireland	Protected Species: Wildlife Acts EU Habitats Directive: Annex IV
Eurasian badger	<i>Meles meles</i>	1	11/03/2009	1.00km	Road Kill Survey	Protected Species: Wildlife Acts
Eurasian pygmy shrew	<i>Sorex minutus</i>	4	18/04/2015	250m	Atlas of Mammals in Ireland 2010-2015	Protected Species: Wildlife Acts
European otter	<i>Lutra lutra</i>	11	01/08/2015	947 m	Atlas of Mammals in Ireland 2010-2015	Protected Species: Wildlife Acts Habitats Directive: Annex II and IV

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Pine marten	<i>Martes martes</i>	1	17/06/2020	990m	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts EU Habitats Directive: Annex V
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	1	02/09/2008	10m	National Bat Database of Ireland	Protected Species: Wildlife Acts EU Habitats Directive: Annex IV
West European hedgehog	<i>Erinaceus europaeus</i>	28	16/04/2021	200m	Hedgehogs of Ireland	Protected Species: Wildlife Acts

Article 17 maps were consulted and none of the following QI species, freshwater pearl mussel, white-clawed crayfish, sea lamprey, brook lamprey, or river lamprey, were recorded within 2 km upstream and downstream of the proposed outfall. The status of EU protected habitats and species in Ireland shows the distribution of brook lamprey, salmon, and freshwater pearl mussel within the 10 km grid where the Proposed Development is located and river lamprey within 2 km upstream and downstream of the proposed outfall location. In addition, the range distribution of white-clawed crayfish is extended to where Proposed Development is located. The area where the proposed outfall is located is considered a catchment of other extant populations (not belonging to catchment of SAC population listed in S.I. 296 of 2009, nor catchment with previous records of freshwater pearl mussel with current status unknown) (NPWS). However, the status of freshwater pearl mussel as a qualifying Annex II species for the Slaney River Valley SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species (NPWS, 2011). Otter habitats, including commuting otter habitat, were recorded within 2 km of the new outfall location (**Appendix B, Figure B.3**).

A Botanical Society of Britain and Ireland (BSBI) desk-based data search of plant species within 2 km from the proposed outfall (grid S85Z) conducted in October 2024 found 408 species of plants. The list includes pondweed species (*Potamogeton* sp), common reed (*Phragmites australis*), canary reed-grass (*Phalaris arundinacea*), whose occurrence is listed in the conservation objectives for the Slaney River Valley SAC QI habitat water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche - Batrachion* vegetation.

4.1.3 Invasive Species

Invasive plant species records were returned from a search of the NBDC database as shown in Table 4.2 below within a 2 km buffer zone of the Proposed Development area. The search returned five Third Schedule plant species and one Third Schedule animal species.

Table 4.2: NBCD records of invasive species (species in bold text are Third Schedule invasives).

Species Name	Scientific Name	Record Count	Date of Last Record	Distance of Closest Record to Site	Impact level
Himalayan balsam	<i>Impatiens glandulifera</i>	21	2020	500 m from Proposed Development	High
Japanese knotweed	<i>Reynoutria japonica</i>	3	2020	450 m from Proposed Development	High
Rhododendron	<i>Rhododendron ponticum</i>	1	2020	1.9 km from the Proposed Development	High

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Three-cornered leek	<i>Allium triquetrum</i>	10	2020	880 m from Proposed Development	Medium
Canadian waterweed	<i>Elodea canadensis</i>	3	2012	900 m from Proposed Development	High
American mink	<i>Mustela vison</i>	1	2012	240 m from Proposed Development	High

No species listed on Third Schedule of the Birds and Natural Habitats Regulations S.I. 477 of 2011 were recorded during the initial 2023 field surveys. However, on the March 2024 walkover survey two stands of Himalayan balsam (*Impatiens glandulifera*) were recorded within 100 m of the potential new outfall location. One stand of immature Himalayan balsam was found directly adjacent to the outfall location upstream and measured approximately 20 m x 50 m. The second stand was also immature at the point of survey and was found 12 m downstream from the proposed outfall location, and the infestation covered an area of 10 m x 20 m. Additionally, there were three other invasive species not listed as Third Schedule species recorded during the field surveys. Winter heliotrope (*Petasites fragrans*) was identified on the proposed pipeline route. The large stand, made up of multiple plants infesting an approximate area of 1 x 274 m, was recorded adjacent to the proposed pipeline route. The stand was located on the southern side of the L2027 road, within the roadside grass verge and beneath a stone wall which runs adjacent to the road.

Cherry laurel (*Prunus laurocerasus*) and an ornamental variety of bamboo were also recorded. These were within boundaries of residential properties and are ornamental plantings. The Proposed Development is not expected to impact these species and therefore no further action is required (**Appendix B, Figure 1**).

It should be noted that three of the invasive species recorded and presented in Table 4.3 are not listed and as such, there is **no legal imperative for removal**. However, winter heliotrope may be taken into consideration in order to reduce the spread of invasive non-native species and any impacts on local biodiversity.

Table 4.3: Invasive species results from the walkover surveys (species in bold are Third Schedule invasives).

Common name	Scientific name	Location(s)(ITM)	Description
Himalayan balsam	<i>Impatiens glandulifera</i>	689830.3, 659702.9 689820.7, 659696.8	20 m x 50 m, 10 x 20 m
Winter heliotrope	<i>Petasites fragrans</i>	689440, 660110	1 m x 274 m
Cherry laurel	<i>Prunus laurocerasus</i>	N/A	Private ornamental planting
Bamboo	Bambusoideae	N/A	Private ornamental planting

4.1.4 Aquatic environment

The Proposed Development is directly adjacent to two watercourses which are hydrologically linked to European sites (see **Appendix B, Figure B.1**) (EPA, 2024).

- Kildavin Stream_010 was assigned a WFD Status of Moderate in 2021 and has a risk rating of At Risk. The risk rating considers the current water quality and trends and is used to highlight waterbodies that are at risk of deteriorating or being at less than Good status in the future. The river is located adjacent to the WwTP and was 4 m wide, 40 cm deep and was fast flowing. Riverbed predominantly consisted of large to medium cobbles with large boulders and small cobbles present. Riparian buffer was 1.5 m wide with ash, beech, bramble, ivy (*Hedera helix*), male fern (*Dryopteris filix-mas*) and Lords-and-

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Ladies (*Arum maculatum*) present. The river had high potential for salmon and lamprey species, which are QI species of the Slaney River Valley SAC, spawning due to the presence of suitable substrate types within the river, and the river had a high potential for use by commuting and foraging otter, another QI species of the SAC. The habitat along and within the watercourse was wide enough to host fish species which the otter could feed on. No otter holts or couches were recorded during the site visit.

- Slaney_120 river was assigned a WFD status of Moderate in 2021 and has a risk rating of At Risk. At the point of the bridge crossing the river was 40 m wide with flow type comprised of 60% run, 25% glide, 10% pool and 5% riffle. This river has a high potential for otter and the bridge crossing the river has potential for roosting bats. Otter spraint was recorded during the site visit at the bridge crossing (52.681310°, -6.671235°) and a second otter spraint was recorded in proximity of the proposed outfall location (see **Appendix A, Photograph 15**).

The Kildavin Stream_010 flows into the Slaney_120 river to the south of Kildavin village. The Proposed Development is within the ground waterbody of Ballyglass (IE_SE_G_011) which has a status of Good and a projection of "At Risk" and is within the WFD catchment 12 – Slaney & Wexford Harbour.

Background ambient monitoring data was collected over a one-year period starting on 21 September 2023 and ending on 12 August 2024. A Waste Acceptance Criteria (WAC) analysis was performed for the proposed outfall location and a SWO within the boundaries of the WwTP with Current Effluent Quality data collected from September 2023 to August 2024 from the River Slaney and the Kildavin Stream. The current quality of the receiving waterbody, independent of the effluent quality, as the ambient data already exceeds for the surface water regulation values, does not allow the Environmental Quality Standards (EQS) to be met. The result of the WAC analysis showed the proposed discharge point to have negligible impact on the receiving waterbody even in drought conditions. The River Slaney WAC analysis shows that the water quality will remain the same or in drought conditions will increase slightly (Ortho-P will increase 2.28%) however it will remain below the Good Quality EQS. The results of the WAC analysis are shown in Tables 4.4 and 4.5 below.

Table 4.4 - Receiving waterbody quality analysis: River Slaney

	Upstream Water Quality		Good Status EQS	
	Mean (mg/l)	95%ile (mg/l)	Mean (mg/l)	95%ile (mg/l)
Ammonia	0.08 (199%)	0.30 (333%)	0.065	0.14
BOD	4.61 (354%)	15.60 (709%)	1.5	2.6
Ortho-P	0.03 (112%)	0.05 (118%)	0.035	0.075

(Values) represent % WAC Used to Achieve Good Status

Table 4.5 – River Slaney WAC Analysis

	Current Discharge Performance	Predicted Downstream Water Quality (PE = 350PE, Current Discharge Performance [See Table])	
	Mean (mg/l)	Mean Condition (mg/l)	95%ile Condition (mg/l)
Ammonia	1.2	0.080 (+0.08%)	0.30 (+0.09%)
BOD	48.8	4.61 (+0.05%)	15.61 (+0.06%)
Ortho-P	4.1	0.028 (+0.79%)	0.054 (+2.28%)

(Values) represent percentage increase against current background data measurement.

The WAC analysis for Kildavin Stream shows that the Emission Limit Values (ELVs) will remain below the maximum discharge load and therefore there will be no change to the current water quality within the stream.

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Table 4.6 show a comparison of average flows and a low flow condition for the proposed discharge volume to the River Slaney. Following discharge from the outfall pipework, the flow will fall onto the sloped floor of the concrete headwall where it will flow at a greatly reduced velocity to the surface of the River Slaney. For both the average and 95%ile flow conditions of the River Slaney the proposed flow rate can be seen to be less than 1/10th of a percent of that of the receiving river, allowing the River Slaney to assimilate the discharge without risk of scour. Given the capacity of the River Slaney, the proposed discharge will have no negative hydrological impact to the receiving waterbody.

Table 4.6 - Comparison of Average Flows and a Low Flow condition for Proposed Discharge Volume to the River Slaney.

	River Slaney Flow (m ³ /s)	Proposed discharge rate to River Slaney (m ³ /s)	Proposed discharge rate as percentage of River Slaney flow (%)
Average Flow	20.9	0.00232	0.011%
95%ile flow	3.820	0.00232	0.061%

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5. Conclusion of Screening for Appropriate Assessment

The Screening for AA of the Proposed Development is presented in Appendix C, and its assessment of LSEs is presented in Table 5.1.

Following an analysis and evaluation of the relevant information including, in particular, the nature of the Proposed Development and the likelihood of significant effects on any European site and applying the precautionary principle it is the professional opinion of the authors that on the basis of objective information it was not possible to exclude that the Proposed Development would have a likely significant effect on the following European sites:

- Slaney River Valley SAC (000781)

The conclusion of the Screening for Appropriate Assessment presented in this NIS, which also takes account recent field survey information that was gathered after the writing of the original screening was that, in the absence of mitigation measures, the following Likely Significant Effects to undermine the conservation objectives of the following European sites cannot be excluded:

- Slaney River Valley SAC for the QI species: freshwater pearl mussel, sea lamprey, brook lamprey, river lamprey, twaite shad, salmon and otter from habitat loss, habitat degradation, disturbance and mortality and to the QI habitat Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation from habitat degradation.

It was therefore concluded that the Proposed Development is progressed to Stage 2 AA which will comprise a detailed assessment of the potential for adverse effects on the integrity of European sites through these LSEs including an assessment of the Proposed Development in-combination with other plans and projects.

Detailed information to inform the AA for the Proposed Development will be presented in this Natura Impact Statement which will be submitted at planning to enable the Competent Authority to undertake an AA in respect of the Proposed Development.

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Table 5.1: Summary of the assessment of LSEs on the QIs of the relevant European Sites.

Relevant European site (and connectivity)	Qualifying Interests and Conservation Objectives	Potential pathways	Assessment of Likely Significant Effects (LSEs) Alone	LSE from the project alone?
Slaney River Valley SAC (Site code: 000781) 0 km - Site is directly adjacent to the Proposed Development. Proposed outfall discharges into the River Slaney therefore it has a direct hydrological link to the SAC	Freshwater pearl mussel [1029]	Habitat loss - permanent	The construction of a new outfall location will occur partially within the boundary of the SAC. The construction of the proposed outfall will include the placement of a pre-cast concrete headwall into the river bank but set back from the SAC boundary. This will require a working area of maximum 5 m x 2 m, extending at worst case scenario 1 m into the river. There is potential for temporary loss of SAC habitat within this area. However, this will only occur within the dry working area around the proposed outfall location. The River Slaney is approximately 35 m wide at this location, therefore it is unlikely to have an impact on the overall available QI habitat within the SAC.	No – No effects at all
		Habitat loss - temporary	The construction of a new outfall location will occur partially within the boundary of the SAC and will result in temporary losses to SAC habitat. The construction of the proposed outfall will include the placement of a pre-cast concrete headwall into the river bank but set back from the SAC boundary. This will require a working area of maximum 5 m x 2 m, extending at worst case scenario 1 m into the river. However, this will occur only within the dry working area around the proposed outfall location. The River Slaney is approximately 35 m wide at this location, therefore it is unlikely to have an impact on the overall available QI habitat within the SAC.	No – No effects at all
		Habitat degradation – changes in water quality	There is potential for pollution during construction to affect the River Slaney and Kildavin Stream_010. Kildavin Stream_010 is likely to affect the SAC due to the short hydrological distance between the stream and the SAC (1.5km). A pollution incident caused by run -off during the construction phase has the potential to affect the River Slaney QI species. A Waste Acceptance Criteria analysis has been carried out for the proposed outfall in the SAC and the SWO within Kildavin Stream, the results show that there is no changes to the water quality as a result of the operation phase anticipated. Therefore, there is no effect from the operation phase expected.	Yes – LSE's cannot be ruled out
		Habitat degradation – changes in air quality	The construction phase of the Proposed Development is largely within the boundaries of the existing WwTP and existing roads. The earthworks within the	No – No effects at all

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		existing roads are not anticipated to cause any impacts to the air quality within the SAC. Given the short duration of the proposed outfall works, one week, there is no potential for effects from changes in air quality.	
	Habitat degradation – hydrological changes	The pumping of treated effluent into the SAC during operational phase has the potential to cause changes in local hydrological regime in proximity to the outfall. However, the design of the outfall includes a plinth which will dissipate flows and as shown in Table 4.6, for both the average and 95%ile flow conditions of the River Slaney the proposed flow rate can be seen to be less than 1/10th of a percent of that of the receiving river, allowing the River Slaney to assimilate the discharge without risk of scour. Therefore, there is no pathway to an effect.	No – Any effects are ecologically inconsequential
	Habitat degradation – hydrogeological changes	The Proposed Development has trenching works to a maximum depth of 3.75 m and may impact groundwater dependent terrestrial ecosystems (GWDTE) up to 250 m distant (Scottish Environmental Protection Agency (SEPA), 2017). The nearest GWDTE is alluvial woodland [91E0] which is 868 m, 1.09 km hydrologically, upstream of the WwTP on the banks of the Kildavin Stream and is outside of the area mapped for the Slaney River Valley SAC. There is pathway to an effect but the effect is not consequential.	No – No effects at all
	Habitat degradation – spread of invasive species	Two stands of Himalayan balsam, an invasive non-native species listed on the Third Schedule of the European Communities Regulations, were recorded during the site survey. One invasive non-native species, winter heliotrope, was recorded along a road within the survey area. However, as this is not a Third Schedule species there is no legal imperative for its removal. The infestations of Himalayan balsam may be disturbed by establishment of the dry working area and as such there is a pathway to an effect. The effect is however inconsequential.	No – Any effects are ecologically inconsequential
	Disturbance of species	Direct disturbance effects to salmon may potentially cause indirect effects on freshwater pearl mussel as salmon play a key role in the life cycle of freshwater mussel species. Disturbance will be limited to the length of time the dry working area is being established, is in place and during removal which is anticipated to be one week. Since the disturbance is likely to occur only within the dry working area around the proposed outfall location, and the River Slaney is approximately 35 m wide at this location, there area of disturbance is limited. Given the available habitat within the river the movement of salmon is not anticipated to be impacted by the installation of the proposed outfall. Although there is a pathway to an effect the effect is inconsequential.	No – Any effects are ecologically inconsequential
	Mortality	Direct mortality impacts on SAC species via a pollution incident caused by run-off during the works into SAC during the construction phase.	Yes – LSE's cannot be ruled out

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<p>Sea lamprey [1095] Brook lamprey [1096] River lamprey [1099] Twaite shad [1103] Salmon [1106]</p> <p>These QIs have been grouped together because they are all surface water dependent species. There is surface water connectivity between this site and the Proposed Development, and therefore a potential pathway for impacts on these QIs.</p>	Habitat loss - permanent	The construction of a new outfall location will occur partially within the boundary of the SAC. The construction of the proposed outfall will include the placement of a pre-cast concrete headwall into the river bank but set back from the SAC boundary. This will require a working area of maximum 5 m x 2 m, extending at worst case scenario 1 m into the river. There is potential for temporary loss of SAC habitat within this area. However, this will only occur within the dry working area around the proposed outfall location. The River Slaney is approximately 35 m wide at this location, therefore it is unlikely to have an impact on the overall available QI habitat within the SAC.	No – No effects at all
	Habitat loss - temporary	The construction of a new outfall location will occur partially within the boundary of the SAC and will result in temporary losses to SAC habitat. The construction of the proposed outfall will include the placement of a pre-cast concrete headwall into the river bank but set back from the SAC boundary. This will require a working area of maximum 5 m x 2 m, extending at worst case scenario 1 m into the river. However, this will occur only within the dry working area around the proposed outfall location. The River Slaney is approximately 35 m wide at this location, therefore it is unlikely to have an impact on the overall available QI habitat within the SAC.	No – No effects at all
	Habitat degradation – changes in water quality	There is potential for pollution during construction to affect the River Slaney and Kildavin Stream_010. Kildavin Stream_010 is likely to affect the SAC due to the short hydrological distance between the stream and the SAC (1.5km). A pollution event impacting on spawning and nursery habitat downstream of the proposed outfall location could impact on distribution of spawning beds and habitat supporting juveniles at these locations. A Waste Acceptance Criteria analysis has been carried out for the proposed outfall in the SAC and the SWO within Kildavin Stream, the results show that there is no changes to the water quality as a result of the operation phase anticipated. Therefore, there is no effect from the operation phase expected. A pollution incident caused by run -off during the construction phase has the potential to affect the River Slaney QI species.	Yes – LSE's cannot be ruled out
	Habitat degradation – changes in air quality	The construction phase of the Proposed Development is largely within the boundaries of the existing WwTP and existing roads. The earthworks within the existing roads are nor anticipated to cause any impacts to the air quality within the SAC. Given the short duration of the proposed outfall works, one week, there is no potential for effects from changes in air quality.	No – No effects at all

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	Habitat degradation – hydrological changes	The pumping of treated effluent into SAC during operational phase has the potential to cause changes in local hydrological regime in proximity to the outfall. The design of the outfall includes a plinth which will dissipate flows and as shown in Table 4.6, for both the average and 95%ile flow conditions of the River Slaney the proposed flow rate can be seen to be less than 1/10th of a percent of that of the receiving river, allowing the River Slaney to assimilate the discharge without risk of scour. There is pathway to an effect but the effect is not consequential.	No - Any effects are ecologically inconsequential
	Habitat degradation – hydrogeological changes	None of these QI species are considered groundwater dependent (EPA 2016), and therefore cannot be affected by any hydrogeological changes. There are no works of this nature and therefore, there is no pathway to an effect.	No – No effects at all
	Habitat degradation – spread of invasive species	Two stands of Himalayan balsam, an invasive non-native species listed on the Third Schedule of the European Communities Regulations, were recorded during the site survey. One invasive non-native species, winter heliotrope, was recorded along a road within the survey area. However, as this is not a Third Schedule species there is no legal imperative for its removal. The infestations of Himalayan balsam may be disturbed by establishment of the dry working area and as such there is a pathway to an effect. The effect is however inconsequential as the QIs in question will not be affected by the spread of invasive species due to the abundance of alternative habitat within the vicinity.	No – Any effects are ecologically inconsequential
	Disturbance of species	Disturbance will be limited to the length of time the dry working area is in place which is anticipated to be less than one week. However, disturbance is likely to occur only within the dry working area around the proposed outfall location, the River Slaney is approximately 35 m wide at this location, and therefore there area of disturbance is limited. Given the available habitat within the river the movement of QI fish species within the river is not anticipated to be impacted by the installation of the proposed outfall. Therefore, there is a pathway to an effect but the effect is not consequential.	No – Any effects are ecologically inconsequential
	Mortality	Direct mortality impacts may occur on SAC QI species via a pollution incident caused by run-off during the works into SAC during the operational phase. The pollution incident may also affect functional habitat for these QI species closer to the origin point of the pollution incident.	Yes – LSE's cannot be ruled out
Otter [1355]	Habitat loss - permanent	The construction of a new outfall location will occur within the boundary of the SAC. The construction of the proposed outfall will include the placement of a pre cast concrete headwall into the river back. This will require a working area of maximum 5 m x 2 m, extending at worst case scenario 1 m into the river. There is potential for permanent loss of SAC habitat within this area. However, this will only occur within	No – No effects at all

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		the dry working area around the proposed outfall location, and given that the stretch of river, where the proposed outfall is located, is mapped for otter commuting habitat, and the available surrounding habitat and mobile nature of the QI species it is unlikely to have an impact on the QI species within the SAC. Therefore, there is no pathway to an effect.	
	Habitat loss - temporary	The construction of a new outfall location will occur within the boundary of the SAC and will result in temporary losses to SAC habitat. However, this will only occur within the dry working area around the proposed outfall location, and given that the stretch of river, where the proposed outfall is located, is mapped for otter commuting habitat, and the available surrounding habitat and mobile nature of the QI species it is unlikely to have an impact on the QI species within the SAC. Therefore, there is no pathway to an effect.	No - No effects at all
	Habitat degradation – changes in water quality	There is potential for pollution during the construction phase to affect the River Slaney and Kildavin Stream_010. Kildavin Stream_010 is likely to affect the SAC due to the short hydrological distance between the stream and the SAC (1.5km). However, a Waste Acceptance Criteria analysis has been carried out for the proposed outfall in the SAC and the SWO within Kildavin Stream, the results show that there are no changes to the water quality as a result of the operation phase anticipated. Therefore, there is no effect from the operation phase expected. A pollution incident caused by run -off during the construction phase has the potential to affect the River Slaney QI species via inadvertently changing the water quality.	Yes – LSE's cannot be ruled out
	Habitat degradation – changes in air quality	The construction phase of the Proposed Development is largely within the boundaries of the existing WwTP and existing roads. The earthworks within the existing roads are nor anticipated to cause any impacts to the air quality. Given the short duration of the proposed outfall works, one week, there is no potential for effects from changes in air quality., Therefore, is no pathway to effect for the QI species.	No – No effects at all
	Habitat degradation – hydrological changes	There are no changes in the hydrological regime predicted from the Proposed Development. The design of the outfall includes a plinth which will dissipate flows and as shown in Table 4.6, for both the average and 95%ile flow conditions of the River Slaney the proposed flow rate can be seen to be less than 1/10th of a percent of that of the receiving river, allowing the River Slaney to assimilate the discharge without risk of scour. Therefore, there is no pathway to an effect	No – No effects at all

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	Habitat degradation – hydrogeological changes	This QI species is considered groundwater dependent (EPA 2016), and therefore cannot be affected by any hydrogeological changes. There are no works of this nature and therefore, there is no pathway to an effect.	No – No effects at all
	Habitat degradation – spread of invasive species	Two stands of Himalayan balsam, an invasive non-native species listed on the Third Schedule of the European Communities Regulations, were recorded during the site survey. One invasive non-native species, winter heliotrope, was recorded along a road within the survey area. However, as this is not a Third Schedule species there is no legal imperative for its removal. The infestations of Himalayan balsam may be disturbed by establishment of the dry working area and as such there is a pathway to an effect. The effect is however inconsequential as the QIs in question will not be affected by the spread of invasive species due to the abundance of alternative habitat within the vicinity.	No – No effects at all
	Disturbance of species	The location of the proposed outfall is located within the SAC and the River Slaney has been mapped as otter habitat/commuting according to Article 17 maps. Therefore, there is potential for otters to be in the vicinity of the Proposed Development. However, due to the mobile nature of the species and the available habitat in the surrounding area it is unlikely that disturbance to otters commuting in the area will be ecologically significant. Therefore, any impacts of disturbance on otter would be ecologically insignificant.	No – Any effects are ecologically inconsequential
	Mortality	No signs of otter were recorded during the site visit and the closest record for otter on the NBDC was 947 m from the Proposed Development. However, the location of the proposed outfall is located within the SAC and the River Slaney has been mapped as otter habitat/commuting according to Article 17 maps. Therefore, there is potential for otters to be in the vicinity of the Proposed Development. Otter could become trapped in the open trench excavations during the construction phase, and so mortality cannot be ruled out as a potential impact in the absence of mitigation.	Yes – LSE's cannot be ruled out
	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]	Habitat loss - permanent	The construction of a new outfall location will occur partially within the boundary of the SAC. The construction of the proposed outfall will include the placement of a pre-cast concrete headwall into the river bank but set back from the SAC boundary. This will require a working area of maximum 5 m x 2 m, extending at worst case scenario 1 m into the river. There is potential for temporary loss of SAC habitat within this area. However, this will only occur within the dry working area around the proposed outfall location. Stands of macrophytes were observed in dense areas in the middle sections of the river and away from the banks and as such there will be no loss of macrophyte vegetation.

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	Habitat loss - temporary	The construction of a new outfall location will occur partially within the boundary of the SAC. The construction of the proposed outfall will include the placement of a pre-cast concrete headwall into the river bank but set back from the SAC boundary. This will require a working area of maximum 5 m x 2 m, extending at worst case scenario 1 m into the river. There is potential for temporary loss of SAC habitat within this area. However, this will only occur within the dry working area around the proposed outfall location. Stands of macrophytes were observed in dense areas in the middle sections of the river and away from the banks and as such there will be no loss of macrophyte vegetation.	No – No effects at all
	Habitat degradation – changes in water quality	There is potential for pollution during construction to affect the River Slaney and Kildavin Stream_010. Kildavin Stream_010 is likely to affect the SAC due to the short hydrological distance between the stream and the SAC (1.5km). A pollution event impacting on macrophyte stands downstream of the proposed outfall location could impact on distribution of stands at these locations. A Waste Acceptance Criteria analysis has been carried out for the proposed outfall in the SAC and the SWO within Kildavin Stream, the results show that there is no changes to the water quality as a result of the operation phase anticipated. Therefore, there is no effect from the operation phase expected. A pollution incident caused by run-off during the construction phase has the potential to affect this River Slaney QI habitat and related vegetation.	Yes – LSE's cannot be ruled out
	Habitat degradation – changes in air quality	The construction phase of the Proposed Development is largely within the boundaries of the existing WwTP and existing roads. The earthworks within the existing roads are nor anticipated to cause any impacts to the air quality within the SAC. Given the short duration of the proposed outfall works, one week, there is no potential for effects from changes in air quality.	No – No effects at all
	Habitat degradation – hydrological changes	The design of the outfall includes a plinth which will dissipate flows and as shown in Table 4.6, for both the average and 95%ile flow conditions of the River Slaney the proposed flow rate can be seen to be less than 1/10th of a percent of that of the receiving river, allowing the River Slaney to assimilate the discharge without risk of scour. There is pathway to an effect but the effect is not consequential.	No – Any effects are ecologically inconsequential
	Habitat degradation – hydrogeological changes	This QI species is not considered groundwater dependent (EPA 2016), and therefore cannot be affected by any hydrogeological changes. There are no works of this nature and therefore, there is no pathway to an effect.	No – No effects at all
	Habitat degradation – spread of invasive species	Two stands of Himalayan balsam, an invasive non-native species listed on the Third Schedule of the European Communities Regulations, were recorded during the site survey. One invasive non-native species, winter heliotrope, was recorded	No - Any effects are ecologically inconsequential

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			<p>along a road within the survey area. However, as this is not a Third Schedule species there is no legal imperative for its removal. The infestations of Himalayan balsam may be disturbed by establishment of the dry working area and as such there is a pathway to an effect. However, the mapped location of the habitat within the conservation objectives for the SAC indicate that the closest occurrence of the habitat is approximately 29km downstream of the dry working area/outfall location. Therefore, any effect the Proposed Development would have on the spread of invasive species would likely not affect the habitat due to the dilution effect and abundance of other suitable habitat for the seeds to grow between the Proposed Development and QI habitat. Therefore, any effects would be ecologically inconsequential.</p>	
	Disturbance of species	This QI species is a habitat and so cannot be affected by disturbance.	No – No effects at all	
	Mortality	This QI species is a habitat and so cannot be affected by mortality.	No – No effects at all	

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6. Information for Appropriate Assessment

As outlined in Section 5, one European site was screened in for Appropriate Assessment which was:

- Slaney River Valley SAC

The SAC is described below.

6.1 The Slaney River Valley SAC

The Slaney River Valley SAC encompasses the freshwater stretches of the River Slaney, which flows west from the Wicklow Mountains for 117.5 km through counties Wicklow, Carlow and Wexford. The River Slaney terminates at Wexford harbour estuary and is designated for a variety of habitats and aquatic fauna which are spread along the length of the river. The SAC has examples of wet woodland which are classified as eutrophic (dominated by willow and subject to tidal influence) and flushed or spring fed (dominated by an alder/ash mix and subject to waterlogging (NPWS, 2016).

Floating river vegetation is found along much of the freshwater stretches within the site. Species present here include water-crowfoot (*Ranunculus* spp.), and water-starworts (*Callitriche* spp.) species, which are associated with the QI habitat, water courses of plain to montane levels [3260]. There have been two rare aquatic plant species, which are legally protected under the Flora (Protection) Order, 2015, recorded in this SAC. Short-leaved water-starwort (*Callitriche truncata*), a very rare, small aquatic herb found nowhere else in Ireland, and Opposite-leaved pondweed (*Groenlandia densa*). However, they were recorded approximately 32 km downstream of the Proposed Development.

The SAC has examples of old oak woodlands, mixed woodlands, dry woodlands and what is considered a very good example of the extreme upper reaches of an estuary. These upper reaches are dominated by tidal reedbeds with wet woodlands also present. The estuary contains swamp and marsh vegetation with a large expanse of intertidal mudflats further south (NPWS, 2011).

The site is an internationally significant site for ornithology with at least twenty-two species of wintering waterfowl using the estuary as a roost and feeding site. These include international important populations of mute swan (*Cygnus olor*), light-bellied Brent goose (*Branta bernicla hrota*), bar-tailed godwit (*Limosa lapponica*) and black-tailed godwit (*Limosa limosa*). The SAC supports a number of important mammal and fish species including otter and salmon. The extremely sensitive freshwater pearl mussel is also a Qualifying Interest species for this site.

Land use adjacent to the SAC is predominately agricultural with arable crops and improved grasslands making up most habitats. The river is popular with anglers for fishing, both commercial and recreational. Agricultural run-off is a major concern as is the spread of invasive species along the riverbank. Both these actions have the potential to reduce the quality of habitats and impact the conservation objectives of the site.

The SAC is designated for the following Qualifying Interest (QI) habitats and/or species listed on Annex I / II and IV of the E.U. Habitats Directive:

- Estuaries [1130],
- Mudflats and sandflats not covered by seawater at low tide [1140],
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330],
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410],

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260],
- Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0],
- *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0],
- Freshwater pearl mussel (*Margaritifera margaritifera*) [1029],
- Sea lamprey (*Petromyzon marinus*) [1095],
- Brook lamprey (*Lampetra planeri*) [1096],
- River lamprey (*Lampetra fluviatilis*) [1099],
- Twaite shad (*Alosa fallax fallax*) [1103],
- Atlantic salmon (*Salmo salar*) [1106],
- Otter (*Lutra lutra*) [1355],
- Harbour seal (*Phoca vitulina*) [1365].

6.1.1 Qualifying Interests potentially exposed to risk

During the screening exercise it was found that the following one QI habitat and seven QI species were exposed to LSEs from habitat degradation:

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]
- Freshwater pearl mussel
- Sea lamprey
- Brook lamprey
- River lamprey
- Twaite shad
- Atlantic salmon
- Otter

6.1.1.1 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

Watercourses of plain to montane zones with floating or submerged vegetation can be present in streams and rivers, backwaters with water through-flow, as well as near-natural drains. The structure of this habitat can be described as layered communities of mostly rooted plants. The habitat was assessed as having an inadequate and deteriorating condition in the period of 2007-2018 Pressures mainly stem from human-related impacts such as

modification of water courses and pollution. The same pressures affect key species of the habitat: the European Bitterling, the Barbel, the Eurasian Otter, River Lamprey and Atlantic Salmon.

6.1.1.2 Freshwater pearl mussel

The freshwater pearl mussel is a critically endangered bivalve mussel which is found in clean, fast flowing rivers and has been recorded as living over a century in Irish waters. The species produces larvae that require a temporary salmonoid host before juvenile mussels occupy gravelly or sandy riverbed habitats for a minimum of five years. Freshwater pearl mussels reach maturity between seven to fifteen years.

The freshwater pearl mussel is critically endangered in Ireland and across Europe with severe population reduction because of habitat deterioration. Changes to river hydrology along with sedimentation and enrichment have dramatically affected this highly sensitive species. These threats are a result of urban wastewater, development activities that increase sedimentation, farming and forestry. The more direct threats to mussel survival include in-stream works and changes to flow rates as a result of land management practices (NPWS, 2019c).

6.1.1.3 Sea lamprey

The sea lamprey is a jawless fish and, along with brook and river lamprey, are Ireland's most primitive freshwater fish species. Similar to eel in body shape, these species lack bones, gill covers or paired fins, instead relying on a skeleton of cartilage and a mouth in the shape of large toothed circular disk (Igoe, *et al.*, 2004).

The life cycle of the sea lamprey includes both a marine and freshwater phase with adult lamprey migrating from sea habitats to freshwater gravel beds in large rivers to spawn. Males will excavate a section of redd in which eggs are laid, before hatching within days. These larvae will float downstream before burrowing into fine sediments where they will remain for a number of years before migrating downstream as young adult lamprey (NPWS, 2019c). This species is listed as near threatened due to threats from in-stream migration barriers, low survival rates of larvae and interspecies competition for spawning sites.

6.1.1.4 Brook lamprey

The brook lamprey is similar in appearance to sea and river lamprey and is the smallest of the three species. The brook lamprey also differs from these species as it is non-parasitic, and its lifecycle is entirely within freshwater habitats. Spawning occurs in spring with adult brook lamprey capable of long migrations to spawning sites. The larvae are indistinguishable from river lamprey and will compete within sediment as filter feeders prior to the adult life phase.

The brook lamprey is the most abundant of the three lamprey species present in Ireland. It is considered to have ample suitable habitat available and has no significant pressures likely to impact the species (NPWS, 2019c).

6.1.1.5 River lamprey

The river lamprey is smaller than sea lamprey but has a similar life cycle as a parasitic migratory fish species. Adult fish spawn in spring using riverbed habitats of fine gravel and small stones. After hatching the larva, or ammocoetes, drift downstream before burrowing into fine sediment. Over a number of years, the larvae will mature to the juvenile stage before migrating downstream to estuarine and marine habitats. Adult fish attach themselves to larger marine species as parasites. At maturity, they return to freshwater spawning grounds, after which adult fish will die.

The species is considered to have abundant suitable habitat however due to limitations in sampling studies the status of the river lamprey is currently unknown. As a migratory fish species river lamprey face many of the same threats as sea lamprey and compete with brook lamprey for suitable larval habitats (NPWS, 2019c).

6.1.1.6 Twaite shad

Similar to lamprey and salmon, the twaite shad is an anadromous fish species which is found in the eastern Atlantic and Mediterranean Sea. Twaite shad spend the majority of their life cycle in estuarine and coastal waters before migrating up freshwater rivers to spawn in summer (NPWS, 2019c).

The species has experienced severe declines across its range as a result of pollution, overfishing in freshwater and artificial barriers to migration being placed in-stream which reduce access to spawning sites (Davis *et al.*, 2020). In Ireland, the twaite shad's range and population are considered 'Bad' but stable and the future prospects for the species are also considered 'Bad' (NPWS, 2019c).

6.1.1.7 Atlantic salmon

Atlantic salmon, or salmon, is an anadromous species indigenous to the North Atlantic. In freshwater it is found in an arc from Northern Portugal in the east, to Connecticut River, New England, United States in the west. The Irish population generally comprises fish that spend two years as sub-adults in freshwater before going to sea as smolts. Most fish spend one winter at sea before returning to their natal rivers, during the summer, as grilse. Smaller numbers spend two winters at sea, returning in spring, hence "spring" salmon. A small proportion of the adult population returns to the sea post-spawning (kelt) and can return to spawn again (NPWS, 2019a).

The River Slaney supports Atlantic salmon, where they use the tributaries and headwaters as spawning grounds. The Slaney is an important salmonid fishery with the main salmon and sea trout fisheries located south of the Slaney bridge in Bunclody (Angling Ireland, 2023). The status of Atlantic salmon nationally has been assessed as 'Inadequate' (NPWS, 2019b).

6.1.1.8 Otter

Otters are common throughout Ireland and national surveys have been undertaken on four occasions since 1980. The latest survey in 2010 indicated otter numbers have recovered to levels seen in 1980. In Ireland, otter populations are found along rivers, lakes and coasts, where fish and other prey are abundant, and where the bank-side habitat offers plenty of cover. Otter are opportunistic predators and will take a range of prey including salmon, eels, frogs and crayfish.

Otters are considered to be in 'Favourable' conservation status with an overall trend demonstrating an on-going increase nationally (NPWS, 2019b).

6.1.2 Conservation objectives of Qualifying Interests exposed to risk

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of annexed habitats and annexed species for which an SAC has been designated. To determine how the Proposed Development would affect the European site's QIs, this assessment has focused on the effects that may possibly occur that could undermine the conservation objectives for the European sites. **Table 6.1** shows the QI habitats and associated conservation objectives of relevance to the Proposed Development.

The overarching conservation objective of this European site is to:

- To restore the favourable conservation condition of QI habitats, which is defined by the attributes and targets in Table 6.1 below.

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Table 6.1: Conservation status and key conditions of Qualifying Interests of the Slaney River Valley SAC (EEA 2013; NPWS, 2011)

QI	Attributes/target	Potential to undermine conservation objectives
<p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation</p>	<p>Distribution and area of habitat is stable at 12.6 km or increasing</p>	<p>No. The concrete inset of the outfall will be set back from the SAC boundary, leading to no permanent habitat loss. This will require a working area of maximum 5 m x 2 m, extending at worst case scenario 1 m into the river. There is potential for temporary loss of SAC habitat within this area. However, this will only occur within the dry working area around the proposed outfall location. Stands of macrophytes were observed in dense areas in the middle sections of the river and away from the banks and as such there will be no loss of macrophyte vegetation. There may be effects from the spread of INNS causing erosion that may result in increased sediment loading and from changes in hydrology however effects would be ecologically inconsequential given the large size of the river and abundant area for colonising.</p>
	<p>Maintain appropriate hydrological regimes in river flow</p>	<p>No. There is a pathway to an effect however the effect is ecologically inconsequential.</p>
	<p>Maintain natural tidal regime in terms of daily water level fluctuation</p>	<p>No. There are no changes in the hydrological regime predicted from the Proposed Development. Therefore, there is no pathway to an effect.</p>
	<p>For the tidal sub-type of the habitat, substratum of the channel must be dominated by particles of sand to gravel with silt at the margins</p>	<p>No. No change in substratum of the channel is anticipated via the works, and a pollution event would not alter the particulate frequencies.</p>
	<p>Concentration of nutrients in the water column must be sufficiently low to prevent changes in species composition or habitat condition</p>	<p>Yes. A change in the concentration of the nutrients in the water column could occur via a pollution event and may lead to changes in species composition or habitat condition.</p>
	<p>Typical species of each relevant habitat sub-type should reach favourable status in occurrence</p>	<p>Yes. A pollution event may lead to an alteration of species within the habitats, and may prevent the occurrence of those species reaching favourable status.</p>

	The area in hectares of active floodplain at and upstream of the habitat should be maintained	No. There are no changes in the hydrological regime predicted from the Proposed Development. Therefore, there is no pathway to an effect.
Freshwater Pearl Mussel	The status of the freshwater pearl mussel as a qualifying Annex II species for the Slaney River Valley SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this species.	Yes. While freshwater pearl mussels are not present in proximity to the area of works there is potential to negatively impact on salmon species which play a key role in the life cycle of freshwater pearl mussel. The area where the proposed outfall is located is considered a catchment of other extant populations of freshwater pearl mussel
Sea Lamprey	Distribution: extent of anadromy/ Greater than 75% of main stem length of rivers accessible from estuary.	No. Any in-stream works will be minimal and there will be no restrictions to river accessibility.
	Population structure of juveniles/At least three age/size groups present.	No. The scale of the Proposed Development does not have the potential to affect the overall population structure.
	Juvenile density in fine sediment/ Juvenile density at least 1/m ² .	Yes. A pollution event impacting on juvenile habitat downstream of the Proposed Development could impact on juvenile density at these locations.
	Extent and distribution of spawning habitat/No decline in extent and distribution of spawning beds. Improved dispersal of spawning beds into areas upstream of barriers.	Yes. A pollution event impacting on spawning habitat downstream of the proposed outfall location could impact on distribution of spawning beds at these locations.
	Availability of juvenile habitat/More than 50% of sample sites positive.	Yes. A pollution event impacting on juvenile habitats downstream of the proposed outfall location could impact on distribution of spawning beds at these locations.
Brook Lamprey	Distribution/Access to all water courses down to first order streams.	No. Any in-stream works will be minimal and there will be no restrictions to river accessibility.
	Population structure of juveniles/At least three age/size groups of brook/river lamprey present.	No. Any in-stream works will be minimal and any impacts to fish species will be temporary.
	Juvenile density in fine sediment/ Mean catchment juvenile density of brook/river lamprey at least 2/m ² .	Yes. A pollution event impacting on juvenile habitat downstream of the Proposed Development could impact on juvenile density at these locations.

	Extent and distribution of spawning habitat/No decline in extent and distribution of spawning beds.	Yes. A pollution event impacting on spawning habitat downstream of the Proposed Development could impact on extent and distribution of spawning beds at these locations.
	Availability of juvenile habitat/More than 50% of sample sites positive.	No. In-stream works will be minimal and no impacts to juvenile habitats are anticipated.
River Lamprey	Distribution: extent of anadromy/Greater than 75% of main stem and major tributaries down to second order accessible from estuary.	No. Any in-stream works will be minimal and there will be no restrictions to river accessibility.
	Population structure of juveniles/at least three age/size groups of river/brook lamprey present.	No. Any in-stream works will be minimal and any impacts to fish species will be temporary.
	Juvenile density in fine sediment/Mean catchment juvenile density of brook/river lamprey at least 2/m ² .	Yes. A pollution event impacting on juvenile habitat downstream of the Proposed Development could impact on juvenile density at these locations
	Extent and distribution of spawning habitat/No decline in extent and distribution of spawning beds.	Yes. A pollution event impacting on spawning habitat downstream of the Proposed Development could impact on distribution of spawning beds at these locations.
	Availability of juvenile habitat/More than 50% of sample sites positive.	No. In-stream works will be minimal and no impacts to juvenile habitats are anticipated.
Twaite Shad	Distribution: extent of anadromy/Greater than 75% of main stem length of rivers accessible from estuary.	No. Any in-stream works will be minimal and there will be no restrictions to river accessibility.
	Population structure- age classes/More than one age class present.	No. Any in-stream works will be minimal and there will be no restrictions to river accessibility
	Extent and distribution of spawning habitat/No decline in extent and distribution of spawning habitats.	Yes. A pollution event impacting on spawning habitat downstream of the Proposed Development could impact on distribution of spawning beds at these locations.
	Water quality- oxygen levels/No lower than 5mg/L.	Yes. A pollution event during construction or the pumping of effluent into the River Slaney during operational phases has the potential to reduce water quality.

	Spawning habitat quality: Filamentous algae; macrophytes; sediment/Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth.	Yes. A pollution event impacting on spawning habitat downstream of the Proposed Development could impact on distribution of spawning beds at these locations.
Atlantic salmon	Distribution: 100% of river channels down to second order accessible from estuary.	No. Any in-stream works will be minimal and there will be no restrictions to river accessibility.
	Spawning: Conservation Limit (CL) for each system consistently exceeded.	No. Given the nature and the scale of the project there is no potential for the project to undermine the conservation limit values as significant numbers of adult spawning fish would not be impacted as part of the Proposed Development.
	Fry abundance: Maintain or exceed 0+ fry mean catchment-wide abundance threshold value.	Yes. A pollution event impacting on juvenile habitat downstream of the Proposed Development could impact on fry abundance at these locations.
	No significant decline in out-migrating smolt abundance.	No. in-stream works will be temporary and there will be no permanent barriers to migration or impact to flows.
	No decline in number and distribution of spawning redds due to anthropogenic causes.	Yes. A pollution event impacting on spawning habitat downstream of the Proposed Development could impact on distribution of spawning beds at these locations.
	Water quality of at least EPA Q4 at all sites.	Yes. Pollution during construction activities could lead to a reduction in water quality.
Otter	No significant decline in the distribution of otter.	No. Given the broad diet and range over which otters forage and that any pollution event during construction would be short-term there is no potential for the Proposed Development to cause a significant decline in the distribution of otter.
	No significant decline in the extent of habitat (terrestrial/ marine/ freshwater). No significant decline in area or length of available river.	No. The Proposed Development will not result in significant loss of any suitable otter habitat.
	No significant decline in the number of couching sites or holts	No. There are no couching or holting sites in the location of the construction works of the Proposed Development.

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	No significant decline in the fish biomass available. Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks.	Yes. Pollution during construction activities could lead to a reduction in water quality impacting on fish populations which could have an impact on otter through reduced prey abundance.
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The conservation status of relevant QIs at national and site level, key conditions underpinning favourable conservation status, attributes and threats to key conditions are presented in Table 6.1. The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of annexed habitats and annexed species of community interest for which a European site has been designated.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

To determine how the Proposed Development would affect the SAC's QIs, this assessment has focused on the effects that may possibly occur that could undermine the conservation objectives for the habitats and species.

Only generic conservation objectives are currently available for the Slaney River Valley SAC (NPWS, 2011). The overarching objective for the site is to:

- Maintain the favourable conservation condition of the Annex I habitat(s) and to restore the favourable conservation condition of the Annex II species for which the SAC has been selected.

For those QI species potentially exposed to risk from the Proposed Development the favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats.
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future.
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Table 6.2: Conservation Status and Key Conditions of Qualifying Interests of Slaney River Valley SAC potentially exposed to risk (NPWS, 2011)

QI	National Conservation Status	Site Level Status	Key conditions supporting favourable conservation status	Main pressures and threats	Mapping available for QI
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<p>Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]</p>	<p>Unfavourable and stable</p>	<p>Unknown</p>	<p>Reversal/rehabilitation of hydro-morphological changes, including in-stream structures and catchment drainage impacts/restoration of hydrological regime</p> <p>Reducing pollution from agricultural, forestry, turf-cutting, and domestic and urban waste-water sources</p>	<p>Agricultural activities generating diffuse pollution to surface or ground waters</p> <p>Agricultural activities generating point source pollution to surface or ground waters</p> <p>Modification of hydrological flow</p> <p>Physical alteration of water bodies</p> <p>Discharge of urban waste water generating pollution to surface or ground water</p> <p>Forestry activities generating pollution to surface or ground waters</p> <p>Pollution to surface or ground water due to urban run-off</p> <p>Peat extraction</p> <p>Plants, contaminated or abandoned industrial sites generating pollution to surface or ground water</p> <p>Abstraction from groundwater, surface water or mixed water</p>	<p>Yes</p>
<p>Freshwater pearl mussel [1029]</p>	<p>Bad and deteriorating</p>	<p>Under review</p>	<p>Manage drainage and irrigation operations and infrastructures in agriculture.</p> <p>Reduce diffuse pollution to surface or ground waters from agricultural activities.</p> <p>Adapt mowing, grazing and other equivalent agricultural activities.</p> <p>Manage the use of natural fertilisers and chemicals in agricultural (plant and animal) production.</p> <p>Adapt/manager forestation and forest regeneration.</p>	<p>Drainage for use as agricultural land.</p> <p>Modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry.</p> <p>Other modification of hydrological conditions for residential or recreational development.</p> <p>Agricultural activities generating diffuse pollution to surface or ground waters.</p> <p>Forestry activities generating pollution to surface or ground waters.</p> <p>Discharge of urban wastewater generating</p>	<p>No</p>

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			<p>Stop forest management and exploitation practices.</p> <p>Adapt/change forest management and exploitation practices.</p> <p>Manage drainage and irrigation operations and infrastructures.</p>	<p>pollution to surface or ground water.</p> <p>Peat extraction.</p> <p>Modification of flooding regimes, flood protection for residential or recreational development.</p> <p>Hydropower including infrastructure.</p> <p>Abstraction of ground and surface waters for public water supply and recreational use.</p>	
Sea lamprey [1095]	Bad and stable	Good	<p>Reduce impact of hydropower operations and infrastructure.</p> <p>Manage changes in hydrological and coastal systems and regimes for construction and development.</p>	<p>Hydropower including infrastructure.</p> <p>Increases or changes in precipitation due to climate change.</p> <p>Application of natural fertilizers on agricultural land.</p> <p>Application of synthetic (mineral) fertilizers on agricultural land.</p> <p>Drainage for use as agricultural land.</p> <p>Marine fish and shellfish harvesting causing reduction of species/prey populations.</p> <p>Threats and pressures from outside the Member State.</p> <p>Temperature changes due to climate change.</p> <p>Droughts and decreases in precipitation due to climate change.</p>	No
Brook lamprey [1096]	Favorable and stable	Good	<p>Reduce impact of hydropower operations and infrastructure.</p> <p>Manage changes in hydrological and coastal systems and regimes for construction and development.</p>	<p>Application of natural fertilizers on agricultural land.</p> <p>Application of synthetic fertilizers on agricultural land.</p> <p>Drainage for use as agricultural land.</p> <p>Clear-cutting, removal of all trees.</p> <p>Hydropower including infrastructure.</p>	No

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				<p>Pollution to surface or ground water due to urban run offs.</p> <p>Discharge of urban wastewater generating pollution to surface or ground water.</p> <p>Temperature changes due to climate change.</p> <p>Droughts and decreases in precipitation due to climate change.</p>	
River lamprey [1099]	Unknown	Good	<p>Reduce impact of hydropower operations and infrastructure.</p> <p>Manage changes in hydrological and coastal systems and regimes for construction and development.</p>	<p>Hydropower including infrastructure. Increases or changes in precipitation due to climate change.</p> <p>Application of natural fertilizers on agricultural land.</p> <p>Application of synthetic fertilizers on agricultural land.</p> <p>Drainage for use as agricultural land.</p> <p>Shipping lanes, ferry lanes and anchorage infrastructure.</p> <p>Temperature changes due to climate change.</p> <p>Droughts and decreases in precipitation due to climate change.</p>	No
Twaite shad [1103]	Bad and stable	Excellent	None.	<p>Application of natural fertilizers on agricultural land.</p> <p>Application of synthetic fertilizers on agricultural land.</p> <p>Hydropower including infrastructure.</p> <p>Shipping lanes, ferry lanes and anchorage infrastructure.</p> <p>Marine fish and shellfish harvesting causing reduction of species/prey populations.</p> <p>Freshwater fish and shellfish harvesting.</p> <p>Bycatch and incidental killing.</p>	No

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				<p>Other invasive alien species.</p> <p>Temperature changes due to climate change.</p> <p>Increases or changes in precipitation due to climate change.</p>	
<p>Salmon [1106]</p>	<p>Inadequate and stable</p>	<p>Excellent</p>	<p>Manage the use of natural fertilisers and chemicals in agricultural (plant and animal) production.</p> <p>Reduce/eliminate point pollution to surface or ground waters from agricultural activities.</p> <p>Reduce diffuse pollution to surface or ground waters from agricultural activities.</p> <p>Adapt/change forest management and exploitation practices.</p> <p>Reduce diffuse pollution to surface or ground waters from forestry activities.</p> <p>Management of professional/commercial fishing (including shellfish and seaweed harvesting).</p> <p>Management of hunting, recreational fishing and recreational or commercial harvesting or collection of plants.</p> <p>Control/eradication of illegal killing, fishing and harvesting.</p> <p>Manage water abstraction for public supply and for industrial and commercial use.</p> <p>Support conservation measures in countries outside the EU.</p>	<p>Other impacts from marine aquaculture, including infrastructure.</p> <p>Physical alteration of water bodies.</p> <p>Mixed source pollution to surface and ground waters (limnic and terrestrial).</p> <p>Agricultural activities generating point source pollution to surface or ground waters.</p> <p>Forestry activities generating pollution to surface or ground waters.</p> <p>Hydropower including infrastructure.</p> <p>Illegal harvesting, collecting and taking.</p> <p>Abstraction of water, flow diversion, dams and other modifications of hydrological conditions for freshwater aquaculture.</p> <p>Interspecific relations.</p> <p>Temperature changes due to climate change.</p> <p>Discharge of urban wastewater generating pollution to surface or ground water.</p> <p>Modification of flooding regimes, flood protection for residential or recreational development.</p> <p>Other invasive species.</p>	<p>No</p>

Otter [1355]	Favorable and improving	Favourable	None.	Pollution	No
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* Items in bold are of relevance to the Proposed Development

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6.1.3 Appraisal of potential impacts on Slaney River Valley SAC

6.1.3.1 Potential impact – pollution

A pollution event during the construction of the Proposed Development could undermine the conservation objectives for the site relating to each of the species described in Section 6.2. As all these species are aquatic, or semi aquatic in the case of otters, any pollutants introduced to the River Slaney habitat have the potential to adversely affect these species. Pollutants may enter the River Slaney through several means including sediment laden run-off, oil and fuel spillages and leakages of construction related chemicals.

The results of the WAC analysis (Table 4.4 and Table 4.5) concluded that there will be no to minimal changes to the current water quality within the River Slaney as a result of the operational phase of the Proposed Development, therefore there is no potential for a long-term pollution event to occur within the River Slaney during the operational phase as a result of the Proposed Development’s new effluent outfall on the bank of the river.

Mitigation measures are therefore required to prevent and manage pollution events during construction phase of the Proposed Development.

6.1.3.2 Potential impact – disturbance

A disturbance event may occur during the construction phase of the Proposed Development through vibrations or noise from use of machinery and large plant equipment. Otter, which use couches and holts on riverbanks for resting and breeding, may be disturbed from rest sites during construction. Fish species can be disturbed by noise and vibration and lighting resulting in avoidance of areas of the river. Bat species may also be disturbed should they be roosting nearby to the Proposed Development.

While no couches or holts were identified near the proposed outfall there is a high probability that otter resting places may be present in the Zol of the Proposed Development, either upstream or downstream of the proposed works. As the construction phase is temporary there is no significant possibility that otter will be affected by ongoing disturbance incidents. Mitigation measures are therefore required to prevent and manage any disturbance to otter resting places during the construction phases of the Proposed Development. In addition, as the proposed outfall is directly adjacent to the River Slaney where otters are known to forage, a derogation licence from the NPWS is required as indirect effects cannot be ruled out entirely via mitigation.

Similarly, while no significant fish spawning grounds were identified within the immediate vicinity of the proposed outfall, there is a high probability that fish populations utilise the river for commuting and feeding. Therefore, mitigation measures will be implemented to minimise disturbance to fish, including noise and vibration management, sediment control measures, and adherence to best-practice construction techniques to reduce impacts on water quality.

One tree with bat roost potential was found approximately 7m from the Proposed Development route, and so disturbance is likely. As the tree cannot be surveyed fully due to health and safety restrictions as it is along the River Slaney bank, and no alternative location for the outfall is deemed suitable or reduces the risk of disturbing any potentially roosting bats, a derogation licence from NPWS for bat species is required in addition to mitigation measures to reduce the impact on bats as far as possible.

6.1.3.3 Potential impact – spread of invasive species

The spread of invasive species could cause loss of habitat within the SAC although the effects were predicted to be inconsequential. Himalayan balsam (*Impatiens glandulifera*) was found directly adjacent to the proposed outfall location and so the works will encroach on the 10m exclusion zone necessary to prevent its spread. Without mitigation, the works are likely to cause the dispersal of the seeds either within the soil surrounding the stand or on the plant itself into the Kildavin Stream_010 watercourse. However, there were only two stands of the invasive found on site, meaning spread would not significantly impact the integrity of the SAC. In addition, the invasive is already present on the banks of the Slaney Valley River SAC, and so disturbing the plants already present is unlikely to significantly impact on the integrity of the European Site. Mitigation for the spread of invasive species is detailed further in Section 7.2.4 for the sake of a complete assessment of appropriate mitigation, however the limited spread potentially caused by the Proposed Development is considered to be ecologically inconsequential for the conservation objectives of the SAC.

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7. Mitigation measures

7.1 Ecological Clerk of Works

An on-site Ecological Clerk of Works (ECoW) will be appointed to carry out pre-construction surveys (see below) to ensure that the baseline is current and where required will implement appropriate mitigation measures as needed. The ECoW will be on site for any works deemed sensitive i.e., within or in proximity to protected European sites or watercourses linked to such sites. Where sensitive habitats or species could be impacted the ECoW will be on site to implement all mitigation measures as described below and advise of adaptive mitigation where required. The ECoW will demonstrate experience and will be a member of a professional body such as CIEEM or similar.

In advance of the works the Contractors ECoW will complete pre-construction confirmatory surveys of invasive species and other holts/couches, whose distribution is dynamic over time, and which are known to have potential to occur within the Zol of the Proposed Development.

The ECoW will give a Toolbox talk to all members of staff who enter the site, which will cover known areas of invasive species, their signs and how to mitigate for their presence. A Toolbox talk will also be given covering the presence of the SAC, what it is designated for and all appropriate mitigation listed hereafter.

The results of pre-construction confirmatory surveys will inform the refinement of mitigation measures (if required) in contractor method statements, and all results will be incorporated into contractor's constraint mapping. Survey reporting and mapping will be provided to the Developer's Project Team (Uisce Éireann) and to any prescribed bodies as required by any planning conditions.

7.2 Pollution and Disturbance

Potential pollution impacts from construction are via the following pathways;

- Transport of pollutants and/or sediments into the Slaney River Valley SAC via overland flows or leakages/ surface water run-off from the construction site and machinery during the pipeline construction; and
- Transport of pollutants and/or sediments in the Slaney River Valley SAC via instream works during the construction of the new headwall for the new outflow pipe.

In light of the potential for effects resulting from pollution and sediment laden run-off, control measures have been developed to ensure that the activities do not adversely impact upon the surface water environment. The introduction of construction-based pollutants or sediment-based run-off may impact the QI species of the Slaney River Valley SAC by polluting spawning sites, habitats for juvenile fish species, damaging the life cycle requirements of freshwater pearl mussel and reducing prey availability. Measures to mitigate pollutants and/or sediment entering the watercourse during construction of the Proposed Development, and therefore protecting QI species, are outlined below.

Measures set-out herein will be implemented to ensure that there will be no pollution of surface water during the construction phase of the Proposed Development. The measures will be incorporated into the contractor's Construction Environmental Management Plan (CEMP) and the CEMP will be developed in accordance with the following guidance documents and legislation:

- Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters (Inland Fisheries Ireland, 2016).
- CIRIA C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters-Williams *et al.*, 2001).

- CIRIA C648 Control of Water Pollution from Linear Construction Projects: Technical Guide (Murnane *et al.*, 2006a).
- CIRIA C649 Control of Water Pollution from Linear Construction Projects: Site Guide (Murnane *et al.*, 2006b).
- CIRIA C811: Environmental Good Practice on Site 5th Edition (Kwan *et al.*, 2023).
- Guidelines for the Crossing of Watercourses during the Construction of National Road schemes (NRA, 2005).
- Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes (NRA, 2008).
- S.I. No. 40/2020 - European Union (Good Agricultural Practice for Protection of Waters) (Amendment) Regulations 2020.

Mitigation measures with respect to accidental pollution are focused on prevention and safeguarding the approach to the storage and handling of materials and managing vehicles during the construction phase.

The following measures will be implemented on site for the storage of materials:

- all oil and diesel storage facilities will be at least 30 m from any watercourse including surface water drains;
- spill kits and drip trays will be provided for all equipment and at locations where any liquids are stored and dispensed;
- storage areas for solid materials, including waste soils, will be designed and managed to prevent deterioration of the materials and their escape (via surface run-off or wind blow);
- storage areas will be kept secure to prevent acts of vandalism that could result in leaks or spills; and
- all containers of any size will be correctly labelled indicating their contents and any hazard warning signs.

The following measures will be implemented on site for the prevention of spills:

- fuel tanks, drums and mobile bowsers (and any other equipment that contains oil and other fuels) will have a secondary containment, for example, double skinned tanks. All tanks, drums and mobile bowsers will be located in a sealed impervious bund with sufficient capacity to contain at least 25% of the total volume of the containers or 110% of the largest container, whichever is the greatest;
- storage areas will be covered, wherever possible, to prevent rainwater filling the bunded areas; and
- fuel fill pipes will not extend beyond the bund wall and will have a lockable cap secured with a chain.
- Where fuel is delivered through a pipe permanently attached to a tank or bower:
 - the pipe will be fitted with a manually operated pump or a valve at the delivery end which closes automatically when not in use;
 - the pump or valve will be fitted with a lock;
 - the pipe will be fitted with a lockable valve at the end where it leaves the tank or bower;
 - the pipework will pass over and not through bund walls; tanks and bunds will be protected from vehicle impact damage;
 - tanks will be labelled with contents and capacity information; and
 - all valves, pumps and trigger guns will be turned off and locked when not in use. All caps on fill pipes will be locked when not in use.
- Suitable precautions will be taken to prevent spillages from equipment containing small quantities of hazardous substances (for example, chainsaws and jerry cans) including:
 - each container or piece of equipment will be stored in its own drip tray made of a material suitable for the substance being handled; and

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- containers and equipment will be stored on a firm, level surface.
- For deliveries and dispensing activities, it will be ensured that:
 - site-specific procedures are in place for bulk deliveries;
 - delivery points and vehicle routes are clearly marked; and
 - emergency procedures are displayed, and a suitably sized spill kit is available at all delivery points, and staff are trained in these procedures and the use of spill kits.

The following measures will be implemented to reduce the risk of fuel and oil leaks from vehicles and plant:

- vehicles and plant provided for use on the site will be in good working order to ensure optimum fuel efficiency, and are free from leaks;
- all machinery will be fully compliant with the relevant standards and requirements to reduce the potential for leaks;
- sufficient spill kits will be carried on all vehicles;
- vehicles and plant will be regularly maintained to ensure that they are working at optimum efficiency and are promptly repaired when not in good working order;
- vehicles and plant will not park near or over drains and will be washed in accordance with the commitments set out above; and
- refuelling of vehicles and plant will be carried out on hard standing, using drip trays to ensure no fuel can contaminate the ground outside of the bunded areas.

The following measures will be implemented to reduce risks associated with concrete pouring:

- a suitable risk assessment for wet concreting will be completed prior to works being carried out and this will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil;
- construction vehicles will be sent back to the construction compound for wash down as per CIRIA C648 recommendations.
- silt fencing will be installed around areas where concrete pouring is to be undertaken and around the construction compound where construction vehicles will be cleaned, where required this may be double silt fencing;
- vegetation will be retained where possible; and,
- where targeted vegetation removal is required additional measures will be put in place including additional silt fencing in these areas.

The following measures will be implemented to ensure reinstatement of land and vegetation to protect watercourses:

- the temporary working space will be bounded by a fence to restrict movement of personnel or machinery to be only where absolutely necessary within the SAC;
- land will be reinstated to its baseline condition, in so far as possible. The reinstatement operation will start with restoration of the subsoil by scarifying / ripping it with flat lift rippers, pulled by a bulldozer to a minimum uniform depth of 300 mm, with care taken to prevent damage to field drainage and other services. The depth of ripping will be selected to scarify / loosen any material compacted during construction. In all cases the depth of ripping shall exceed the depth of subsoil compaction. All surface stones and roots over 150 mm in diameter will be picked up and removed. Re-grading subsoil using excavators / graders will be carried out and will include side slopes, where applicable;

- the spreading of subsoil and later topsoil will be carried out during favourable weather conditions when the soil is drier and more friable. The subsoil stockpiled for reinstatement will be pulled back from the fence line using excavators to allow bulldozers to push it evenly back across the corridor and leaving it generally level. Then the separately stockpiled topsoil will be pulled back from the fence line using excavators to allow bulldozers to push it evenly back across the corridor and leaving it generally level so as to present a neat and level appearance (the level of the trench area shall be the same as that of the undisturbed surrounding ground around one year after restoration is completed); and
- As part of the CEMP there will be a toolbox talk given to all site personnel to highlight any environmental sensitivities and the boundaries of sensitive habitats.

7.2.1 Disturbance

Measures set-out herein will be implemented to ensure that there will be no disturbance to QI species during the construction phase of the Proposed Development. The NRA (2008) Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes; and the NRA (2008) Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes will be adhered to.

- Works will take place within a defined working area to reduce the footprint of the Proposed Development to minimise potential for impact to otter foraging or resting habitat.
- Any excavations will be covered at night to prevent otter from falling in or becoming trapped.
- There will be no night-time working.
- Any lights will be turned off after working hours. Lights will be angled away from the river to minimise disturbance to fish. During sensitive periods for fish, lighting will be switched off to limit impact of potential disturbance.
- Where it is possible that night-time working is required light will be cowed and will be angled away from the river to minimize disturbance to fish.
- No working in the watercourse will occur during sensitive time periods for fish species, and unless otherwise agreed with IFI, in-stream works will be restricted to the fisheries open season (July to September inclusive) in order to minimise the risk of disturbance to fish.
- A pre-construction survey will be carried out to ensure no change in the baseline information to ensure that mitigation measures remain relevant. This should be conducted no more than 10-12 months in advance of construction. Should there be a change in otter behaviour or new holts created a derogation licence from the NPWS may be required. Conditions will usually be attached to each derogation granted in respect of otters and operations at holts or in their vicinity.
- No works should be undertaken within 150 m of any holts at which breeding females or cubs are present. Otter breeding may take place during any season so breeding activity at holts needs to be determined on a case-by-case basis. No wheeled or tracked vehicles (of any kind) should be used within 20 m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15 m of such holts, except under licence.
- As works are adjacent to the Slaney River Valley SAC where otters are known to forage and are a QI species, a derogation licence application has been submitted and approved by NPWS for the works which could potentially disturb foraging otter (DER-OTTER-2025-08). The approved licence can be found in Appendix E.
- As works are proposed to be within 7m of a low to moderate bat roost potential tree, a derogation licence application has been submitted and approved by NPWS for the works which could potentially disturb roosting bats (DER-BAT-2025-209). The approved licence can be found in Appendix E.
- A Noise and Vibration Management Plan will be developed by the appointed contractor.
- All site access roads will be kept even to reduce vibration.

- Noise levels will not exceed permissible levels for construction works (80dB(A)) based on Guidelines for the Treatment of Noise and Vibration in National Road Schemes (NRA, 2004). Additionally, given that works will be confined to daylight hours where possible and the QI species potentially at risk are most active outside of working hours no significant impacts from noise will occur.
- Post construction, the site will be revegetated.

7.2.2 Mitigation for outfall installation

Mitigation measures with respect to the installation of the outfall infrastructure and establishment of a dry working area are focused on preventing pollution to protected habitats downstream of the outfall installation point and maintaining normal flow levels during construction.

The installation of the outfall and pre-fabricated headwall have the potential to generate silt and suspended solids. To reduce the risk of discharging sediment into the watercourse, it is proposed to carry out all these works in a dry works area with an impermeable barrier laid in the trench to allow construction. The existence of a temporary impermeable barrier within the channel, will have a direct impact on the cross section of the channel and is expected to give rise to localised changes in water depth, velocities, and sediment erosion / deposition.

The following mitigation measures will be implemented when establishing and using a dry works area:

- The dry works area will be isolated by installing an impermeable barrier between the watercourse and the works area;
- The impermeable barrier will be tailored to the watercourse in question. Techniques include the use of inflatable dams, frame dams or, in smaller watercourses, sandbags (double-bagged and underfilled; containing only clean washed sand);
- Water pumped from the dry works area will be treated using settlement tanks to remove prior sediment and then be allowed to filter back to the watercourse, rather than discharging directly back into the watercourse, thereby avoiding scouring;
- In consultation with Inland Fisheries Ireland (IFI), greater filtration of silt may be achieved prior to discharge, through proposed use of silt de-watering bags which trap silt and expel only clean water and can be left to biodegrade on riverbanks as a habitat enhancement measure;
- Site restoration works will be carried out following completion of the works, in agreement with IFI. These works may include riverbank stabilisation, gravel replacements etc. In all cases, the site will be restored post installation.
- If required by IFI, in-stream trenching works will not be carried out during extreme rainfall or high flow events. Met Éireann provides a 5-day weather forecast via its website (www.met.ie) and works will not take place during yellow, orange, and red weather warnings.
- Unless otherwise agreed with IFI, any element of the works requiring in-stream trenching works will be restricted to the fisheries open season (i.e., restricted to July to September inclusive).
- A crane, excavator or similar machinery with a boom attachment will be used for the removal of sheet piles, limiting the potential for disturbance or release of pollutants during abstraction of sheet piles.

7.2.3 Mitigation for working adjacent to watercourses

Mitigation measures with respect to works taking place adjacent to the River Slaney and the Kildavin Stream and drainage ditches which hydrologically link to these rivers are focused on preventing pollution from surface run-off of the river during excavation and maintaining normal flow levels.

The following measures will be implemented on site, to prevent surface water run-off into rivers:

- Silt fences are required between works areas and water features where construction is within 30 m of a watercourse or drainage ditch which is linked to a watercourse to prevent potentially contaminated surface water run-off from works areas reaching the surface water feature.
- Silt fences will be installed downgradient of the potential source of the silt/sediment;
 - The silt fence will contain the area where silted waters are being generated and shall terminate on high ground, along roads the silt fence will be installed adjacent to drainage ditches;
 - The silt fence shall be constructed using permeable filter fabric (Hy-Tex Terrastop silt fence or similar) rather than a mesh material;
 - The vegetated turves shall be peeled back and not detached from the ground, the materials inserted and the turves replaced to hold the base in place;
 - The silt fence will be inspected regularly by the ECoW and contractor during the working day and weekly during construction, and in particular following heavy rainfall;
 - Silt fences shall remain in-situ until the vegetation on the disturbed ground is re-established;
 - The fence shall not be pulled from the ground, but cut at ground level and the stakes/ posts removed;
 - Should water build up behind the fences, the sediment will settle to the bottom. Water can be released, but sediments will remain;
 - Two lines of silt fencing will be installed in sensitive areas as agreed with the ECoW; and
 - A record of its installation, inspection and removal must be maintained by the ECoW.

7.2.4 Mitigation for invasive species

Mitigation measures with respect to the invasive species found on site are focused on preventing the spread of Himalayan balsam further within the SAC. The species was found adjacent to the proposed outfall location.

- Prior to any ground breaking, Himalayan balsam should be removed where a 10m exclusion buffer cannot be established, primarily adjacent to the proposed outfall location. This should be done via:
 - Spraying all stands within 10m of the works area with a glyphosphate-based herbicide;
 - All individual plants should then be hand pulled;
 - All contaminated land removed through the course of the works and all removed plant matter should be removed off site with no temporary on-site storage permitted. A licensed waste carrier shall transport and dispose of the materials at an approved facility;
 - Where works can proceed outside of a 10m exclusion zone surrounding Himalayan balsam, this area should be demarcated on site and all site attendees be made aware of its presence in a Toolbox talk.

8. In-combination assessment

In order to take account of in-combination effects, plans and projects that are completed, approved but uncompleted, or proposed (but not yet approved) should be considered in this context (European Commission 2021a).

A search of the National Planning Application Database (NPAD) (DHLGH ND) and general web searches for major infrastructure projects and plans in the vicinity of the Proposed Development in the last five years has been undertaken to identify other plans and projects that may contribute to in-combination effects.

The search identified two plans and fourteen projects which were considered to have the potential for in-combination effects and therefore required further assessment.

8.1 Assessment of In-Combination Effects

Table 8.1 reports the assessment of in-combination effects.

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Table 8.1: Assessment of In-Combination Effects.

Plan / project name	Description of plan/project		Pathways potentially acting in combination	Assessment of LSE in-combination	LSE in-combination?
Carlow County Development Plan 2022 – 2028	Carlow County Council has prepared a land use plan and overall strategy for the proper planning and sustainable development of the functional area of County Carlow over the six-year period 2022-2028. The Plan sets out the Council's proposed policies and objectives for the development of the County over the Plan period.	A Natura Impact Statement was prepared in support of this develop and, in the absence of mitigation measures, there is the possibility of in-combination effects.	Habitat degradation – changes in water quality	Once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	Once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Mortality	Once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
Wexford County Development Plan 2022 – 2028	Wexford County Council has prepared a land use plan and overall strategy for the proper planning and sustainable	A Natura Impact Statement was prepared in support of this develop and, in the absence of mitigation	Habitat degradation – changes in water quality	Once mitigation measures are in place there will be no effects that could undermine the integrity of European Site.	No – No effects at all

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	development of the functional area of County Wexford over the six-year period 2022-2028. The Plan sets out the Council's proposed policies and objectives for the development of the County over the Plan period.	measures, there is the possibility of in-combination effects.		Therefore, there is no pathway to an effect	
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	Once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Mortality	Once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
22129	Carlow County Council - Permission for the installation of a photo voltaic panel array on the roof of an existing agricultural building to produce 25kW of electricity and associated site works.	An AA screening report has been carried out and no pathway to the SAC was identified therefore there is no potential for in-combination effects. 125m from Proposed Development.	Habitat degradation – changes in water quality	AA screening report concluded no impacts therefore there is no pathway to an effect	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site.	No – No effects at all

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				Therefore, there is no pathway to an effect	
			Disturbance	AA screening report concluded no impacts therefore there is no pathway to an effect	No – No effects at all
			Mortality	AA screening report concluded no impacts therefore there is no pathway to an effect	No – No effects at all
22160	Carlow County Council - new entrance location and car-parking layout to grounds adjacent public road. Erection of flood lighting to existing playing pitch. Construction of walking track to perimeter of existing playing pitch, including low level lighting for walking track. Construction of sheltered/covered access for supporters adjacent existing playing pitch. Installation of Solar PV panel array on roof area of existing clubhouse building and all ancillary site works. Carlow County Council - Permission for the construction of a single story extension to the northeast elevation of existing dwelling. Permission for the construction of a garage/store and all associated site works.	An AA screening report has been carried out and no pathway to the SAC was identified therefore there is no potential for in-combination effects. Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. 5m from Proposed Development.	Habitat degradation – changes in water quality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
			Mortality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all

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21180	Carlow County Council - new entrance location and car-parking layout to grounds adjacent public road. Erection of flood lighting to existing playing pitch. Construction of walking track to perimeter of existing playing pitch, including low level lighting for walking track. Construction of sheltered/covered access for supporters adjacent existing playing pitch. Installation of Solar PV panel array on roof area of existing clubhouse building and all ancillary site works.	An AA screening report has been carried out and no pathway to the SAC was identified therefore there is no potential for in-combination effects. 300m from Proposed Development	Habitat degradation – changes in water quality	AA screening report concluded no impacts therefore there is no pathway to an effect	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	AA screening report concluded no impacts therefore there is no pathway to an effect	No – No effects at all
			Mortality	AA screening report concluded no impacts therefore there is no pathway to an effect	No – No effects at all
21451	Carlow County Council - Retention of existing 37msq commercial steel frame shed and erection of 30msq extension to commercial steel frame shed and all associated site works Carlow County Council - Permission to erect a dwelling with services and domestic garage and all associated site and ancillary works.	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. 5m from Proposed Development	Habitat degradation – changes in water quality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all

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			Disturbance	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
			Mortality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
21452	Permission for the erection of a dwelling, detached shed and new vehicular entrance. An AA screening report has been carried out and project is deemed to not require stage two Appropriate Assessment. Carlow County Council - Retention planning permission of demolition works to date and planning permission to remove demolition material from a demolished fire damaged building on site and for the construction of 3 no. two story fully serviced dwelling houses with connection to public mains sewer and mains water with all associated site works.	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. 75m from Proposed Project.	Habitat degradation – changes in water quality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
			Mortality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all

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20190383	Wexford County Council - Permission to construct an extension to side of existing dwelling with minor alterations to accommodate same and all associated site works. Wexford County Council - For extensions to the existing dwelling and all associated site works.	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects 120m from Proposed Development..	Habitat degradation – changes in water quality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
			Mortality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
2013	Carlow County Council - to construct 1 No. 10.43 long x 5m wide and 1 No. 10.43m long x 7m wide sludge drying reed bed and associated site works within the boundary of the existing Kildavin wastewater treatment plant. Carlow County Council - Seek retention permission for the altered house design as	An AA screening report has been carried out and project is deemed to not require stage two AA. Due to the small scale of works, there is no potential for in-combination effects. Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	Habitat degradation – changes in water quality	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the	No – No effects at all

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	constructed from planning previously granted. Retention permission is also being sought for existing domestic sheds.	70m from Proposed Project.		integrity of European Site. Therefore, there is no pathway to an effect	
			Disturbance	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No - No effects at all
			Mortality	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No - No effects at all
20188	The demolition of existing derelict houses, sheds, and site clearance. The construction of 3 no houses, all associated footpath, parking, boundaries, connection to water and wastewater and all associated works and the development of an amenity area/public (a) partial demolition & internal alterations of an existing office (previously granted under planning ref. O6/864); (b) demolition of a block wall & steel railing boundary treatment; (c) the construction of a 119m2 extension comprising of additional office accommodation; (d) relocation of the existing front	An AA screening report has been carried out and the project was deemed to require a stage two AA. However, the proposed development, by itself or in combination with other plans, would not adversely affect the European Site, in view of the project's conservation objectives. An EIA preliminary examination states that it is very unlikely the proposed project, in combination with other plans would result in significant effects. 5m from Proposed Project.	Habitat degradation – changes in water quality	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No – No effects at all
			Mortality	AA screening report concluded due to the small scale of works, there is no	No – No effects at all

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	yard area further south of the site and; (e) all associated landscaping and site development works			potential for in-combination effects.	
20276	Development of a pedestrian cycle route and bridge crossing of the River Derry Carlow County Council - Retention of existing 37msq commercial steel frame shed and erection of 30msq extension to commercial steel frame shed and all associated site works	An AA screening report has been carried out and the project was deemed to require a stage two AA, however, the proposed development, individually or in combination with other plans and projects would not adversely affect the integrity of the aforementioned European site, or any other European site, in view of the site's Conservation Objectives Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. 80m from Proposed Project.	Habitat degradation – changes in water quality	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No – No effects at all
			Mortality	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No – No effects at all
17205	Carlow County Council - Retention planning permission of demolition works to date and planning permission to remove	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	Habitat degradation – changes in water quality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all

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	demolition material from a demolished fire damaged building on site and for the construction of 3 no. two story fully serviced dwelling houses with connection to public mains sewer and mains water with all associated site works. Carlow County Council - Permission to construct an extension to side of existing dwelling with minor alterations to accommodate same and all associated site works.	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. 5m from Proposed Project.	Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
			Mortality	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects.	No – No effects at all
18327	Carlow County Council - For extensions to the existing dwelling and all associated site works. Carlow County Council - to construct 1 No. 10.43 long x 5m wide and 1 No. 10.43m long x 7m wide sludge drying reed bed and associated site works within the boundary of the existing Kildavin wastewater treatment plant.	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. An AA screening report has been carried out and project is deemed to not require stage two AA. Due to the small scale of works, there is no potential for in-combination effects. 0m from Proposed Project – works on the Kildavin Wastewater Treatment Plant.	Habitat degradation – changes in water quality	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	AA screening report concluded due to the small	No – No effects at all

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				scale of works, there is no potential for in-combination effects.	
			Mortality	AA screening report concluded due to the small scale of works, there is no potential for in-combination effects.	No - No effects at all
2460105	Carlow County Council - Seek retention permission for the altered house design as constructed from planning previously granted. Retention permission is also being sought for existing domestic sheds. The demolition of existing derelict houses, sheds, and site clearance. The construction of 3 no houses, all associated footpath, parking, boundaries, connection to water and wastewater and all associated works and the development of an amenity area/public	Due to the small scale of works and the lack of connectivity to the European site there is no potential for in-combination effects. An AA screening report has been carried out and the project was deemed to require a stage two AA. However, the proposed development, by itself or in combination with other plans, would not adversely affect the European Site, in view of the project's conservation objectives. 20m from Proposed Project.	Habitat degradation – changes in water quality	AA screening report concluded no impacts therefore there is no pathway to an effect	No – No effects at all
			Habitat degradation – hydrological changes / spread of invasive species	Ecologically inconsequential effects could act in-combination however once mitigation measures are in place there will be no effects that could undermine the integrity of European Site. Therefore, there is no pathway to an effect	No – No effects at all
			Disturbance	AA screening report concluded no impacts therefore there is no pathway to an effect	No – No effects at all
			Mortality	AA screening report concluded no impacts therefore there is no pathway to an effect	No – No effects at all

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8.2 Conclusions of in-combination effects

An examination of potential in-combination effects is presented in Table 8.1. From this assessment it can be concluded on the basis of objective information from the assessment in Table 8.1 that there is no potential for in-combination effects of the Proposed Development and other plans or projects to undermine the integrity of European site, Slaney River Valley SAC.

In addition, the mitigation measures detailed in Section 7 will prevent any adverse effects on the integrity of the Slaney River Valley SAC arising from the Proposed Development, and therefore, with mitigation taken into account, there can be no potential for in-combination effects.

9. Conclusion

This NIS examined the potential for changes in the baseline conditions as a result of the Proposed Development against the conservation objectives for European sites, Slaney River Valley SAC. The NIS details mitigation measures which have been prescribed to ensure the Proposed Development will not result in adverse effects on Natura 2000 site integrity either alone or in-combination with other plans or projects.

Based on the best available scientific information and professional judgement, it is considered that with the mitigation measures detailed above, there will be no adverse effects on the integrity of those European sites, alone or in-combination with other plans or projects in light of those site's conservation objectives. The NIS contains information which the competent authorities, may consider in making its own complete, precise and definitive findings and conclusions and upon which it is capable of determining that all reasonable scientific doubt has been removed as to the effects of the Proposed Development, alone or in-combination with any other plan or project, on the integrity of the relevant European sites.

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Appendix A. Photographs



Photograph 1: River Slaney downstream, view from bridge



Photograph 2: River Slaney upstream, view from bridge



Photograph 3: Location of the new outfall, view from the bridge



Photograph 4: Location of the new outfall, view from the road



Photograph 5: Location of the new outfall and view river (upstream), view from left riverbank in proximity of new outfall location



Photograph 6: Location of the new outfall, frontal view from the river

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Photograph 7: Frontal view of the river from the new outfall location



Photograph 8: Downstream view of the river from the new outfall location



Photograph 9: Left riverbank, view from the outfall location



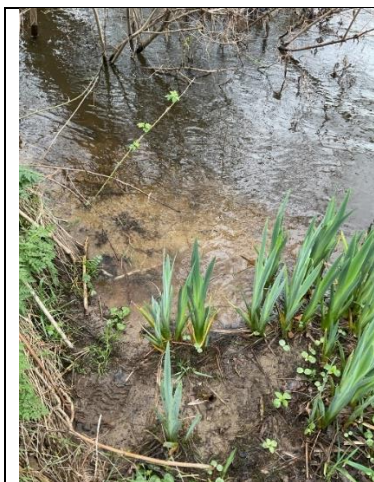
Photograph 10: Wet woodland, located in the section downstream between 800-900m from the bridge



Photograph 11: Active quarry



Photograph 12: Silt bed potential for juvenile lamprey, located in 100-200m section of the river (downstream from the bridge)



Photograph 13: Silt bed over 30 cm good potential for juvenile lampreys, located in 400-500m section of the river (downstream from the bridge)



Photograph 14: Detail of silt bed over 30 cm good potential for juvenile lampreys, located in 400-500m section of the river (downstream from the bridge)



Photograph 15: Potential otter spraint in the proximity of the proposed outfall (section 0-100m upstream of the proposed development)



Photograph 16: Potential badger dropping in the section 400-500m of the river

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Photograph 17: Badger footprint recorded within 20 m of the River Slaney on the left bank



Photograph 18: Potential badger sett recorded within 20 m of the River Slaney on the left bank



Photograph 19: Mammal track, potential otter slide, section 700-800m of the river



Photograph 20: Potential otter spraint in section 800-900m of the river



Photograph 21: Mammal track, potential otter slide, along section 800-900m of the river



Photograph 22: Tree with low to moderate bat roots potential in correspondence of the proposed outfall

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Photograph 23: Bridge with bat roost potential



Photograph 24: Stand of Himalayan balsam



Photograph 25: Himalayan balsam young plants



Photograph 26: Submerged macrophytes visible from the bridge



Photograph 27: Sediment entering the river upstream of the bridge and of the proposed WWTP outfall location.



Photograph 28: Water abstraction (X: 689573.3 Y: 659339.1)

Appendix B. Figures

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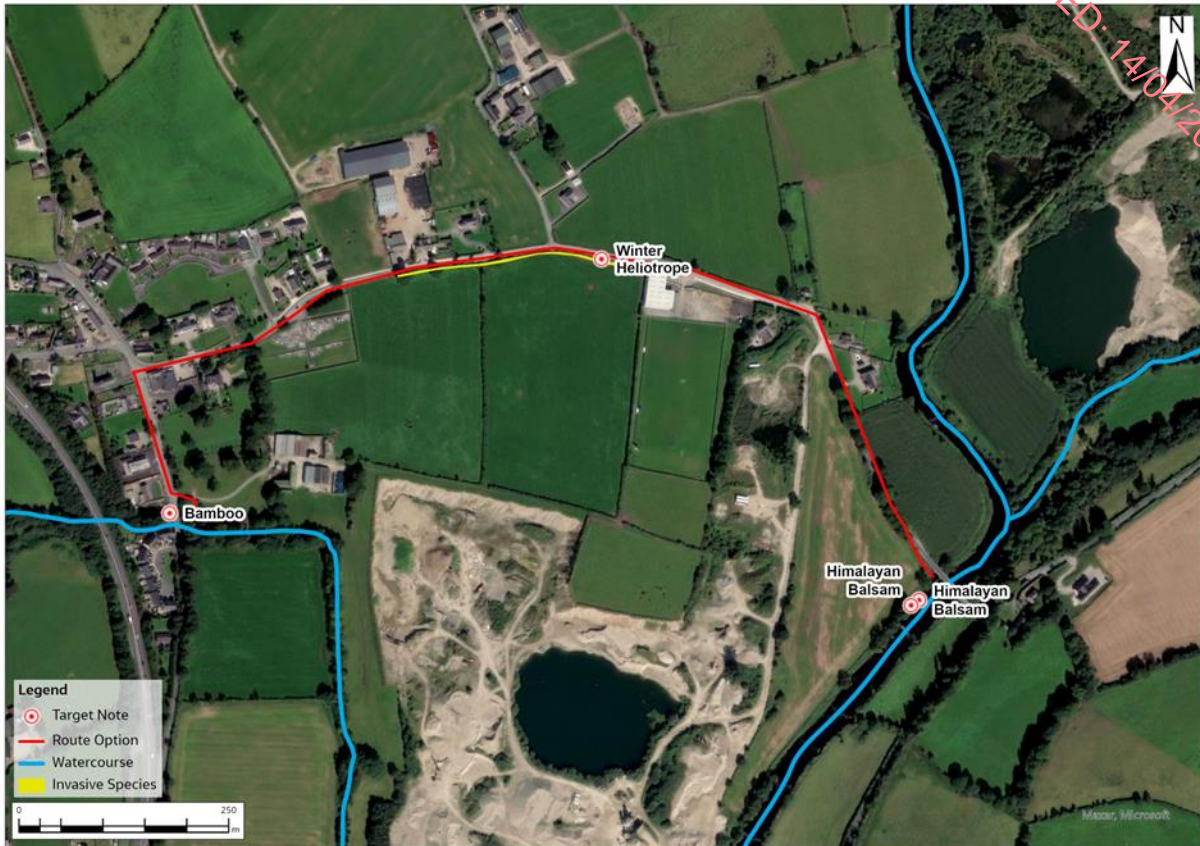


Figure B.1: Invasive species locations overview



Figure B.2: Article 17 habitats found within 2 km of the proposed outfall.

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Figure B.3: Orange line shows the otter habitat/commuting according to Article 17 maps.

Appendix C. Appropriate Assessment Screening Report

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Appendix E. Approved NPWS Derogation Licences for the Proposed Project

E.1 Otter Licence (DER-OTTER-2025-08)

E.2 Bat Licence (DER-BAT-2025-209)

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