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Natura Impact Statement

PRESENTED TO

Reside (Castlepark) Ltd
for a Proposed Large-scale Residential Development
at Castlelands, Mallow, Co. Cork

October 2024

Environmental Consultancy Services

DOCUMENT CONTROL SHEET

Client	Reside (Castlepark) Ltd
Project Title	Proposed Large-scale Residential Development on lands at Castlelands, Mallow, Co. Cork
Document Title	Natura Impact Statement

Revision	Status	Author(s)	Reviewed	Approved	Issue Date
00	Draft for internal review	CBH *Ecologist*	-	-	-
01	Draft for Client Review	CBH *Ecologist*	LG *Senior Ecologist*	SOD *Principal Ecologist*	04/12/2023
02	Issue	CBH *Ecologist*	LG *Senior Ecologist*	SOD *Principal Ecologist*	09/02/2024
03	Issue with updates	CBH *Ecologist*	SA Senior Project Freshwater Ecologist, RPS	*BL* *Principal Ecologist*	22/03/2024
04	Issue with updates	SH *Ecologist*	AC *Ecologist*	*BL* *Principal Ecologist*	08/10/2024
05	Issue with minor updates	SH *Ecologist*	-	-	10/10/2024

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Unless otherwise stated in this Report, the assessments made assume that the Site and facilities will continue to be used for their current or stated proposed purpose without significant changes.

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If the scope of work includes subsurface investigation such as boreholes, trial pits and laboratory testing of samples collected from the subsurface or other areas of the Site, and environmental or engineering interpretation of such information, attention is drawn to the fact that special risks occur whenever engineering, environmental and related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing programme implemented in accordance with best practice and a professional standard of care may fail to detect certain conditions. Laboratory testing results are not independently verified by Enviroguide and have been assumed to be accurate. The environmental, ecological, geological, geotechnical, geochemical and hydrogeological conditions that Enviroguide interprets to exist between sampling points may differ from those that actually exist. Passage of time, natural occurrences and activities on and/or near the Site may substantially alter encountered conditions.

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1 INTRODUCTION

1.1 Background

Enviroguide Consulting was commissioned by Reside (Castlepark) Ltd to prepare an Appropriate Assessment (AA) Screening Report for a Proposed Large-scale Residential Development, located at Castlelands, Mallow, Co. Cork, hereafter referred to as 'Proposed Development' or 'Site', when referring to the application Site area within the red line boundary. If referring to the applicant's entire landholding, this will be clearly stated.

The AA Screening Report concluded that a degree of uncertainty exists in whether the Proposed Development could give rise to potentially significant effects on a nearby European site, namely:

- Blackwater River (Cork/Waterford) SAC (002170)

Therefore, a Natura Impact Statement (NIS) has been prepared for the Proposed Development. The purpose of this NIS report is to provide information for the relevant competent authority to carry out a Stage 2 Appropriate Assessment in respect of the Proposed Development.

1.2 Quality Assurance and Competence

Enviroguide Consulting is a multi-disciplinary consultancy specialising in the areas of the Environment, Waste Management and Planning. All Enviroguide consultants carry scientific or engineering qualifications and have a wealth of experience working within the Environmental Consultancy sectors, having undergone extensive training and continued professional development.

Enviroguide Consulting as a company remains fully briefed in European and Irish environmental policy and legislation. Enviroguide staff members are highly qualified in their field. Professional memberships include the Chartered Institution of Wastes Management (CIWM), the Irish Environmental Law Association and Chartered Institute of Ecology and Environmental Management (CIEEM).

All surveying and reporting have been carried out by qualified and experienced ecologists and environmental consultants. CBH & GK, Ecologists with Enviroguide, undertook the habitat, fauna and flora surveys and desktop research for this report. While EJD assisted both CBH and GK in the completion of the emergence bat surveys. TR carried out an additional site survey in July 2024, and SH provided updates to the report in accordance with the findings.

CBH is the author of this report. CBH is an Ecologist with Enviroguide and has a BSc. (Hons) in Wildlife Biology from Munster Technological University (formerly ITT) and a wealth of experience in desktop research, literature review and reporting, as well as practical field and laboratory experience. CBH has prepared several Stage I and Stage II Appropriate Assessment Reports. Additionally, CBH has supported the preparations of several Biodiversity Chapters for Environmental Impact Assessment Reports. CBH

is also a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

GK is a former Graduate Ecologist with B.Sc. (Hons) in Zoology from University College Cork who has experience in data collation, field surveys and report writing (including experience with GIS). GK has experience in completing Stage I AA Reports and has supported the preparation of various ecological reports.

EJD is a former Ecologist with Enviroguide Consulting. EJD has extensive experience in field surveying, including habitat, fauna, and flora surveys. As well as report writing experience in preparing several Stage I and Stage II Appropriate Assessment Reports.

TR has a B.Sc. in Environmental and Natural Resource Management (Hons) and a Post-Graduate Diploma in Environmental Management with GIS. TR is an experienced Ecologist who has specialised in ornithology and terrestrial mammals with over 8 years' experience in ecological consultancy along with a lifetime of personal interest and experience in wildlife management. TR has extensive field experience with further experience and competencies in desktop research, preparing AA Screening Reports (AA), Ecological Impact Assessment Reports (EcIAs), Bird Activity Reports and detailed Species-Specific Maps. His ability to deal with and understand a range of species, survey methods and habitats is excellent, having an in-depth knowledge and understanding of EU and Irish legislation.

SH has a B.Sc. (Hons) in Zoology and a Ph.D. in Marine Ecology from University College Dublin, and a wealth of experience in desktop research, bioinformatics analyses, literature review and reporting, as well as practical field and laboratory experience including habitat mapping, invasive species surveys, terrestrial fauna surveys (incl. mammal presence and bat activity surveys), freshwater and marine fish surveys and environmental DNA analysis. SH has prepared several Stage I and Stage II Appropriate Assessment Reports and Ecological Impact Assessments (EcIA). Additionally, SH has authored and supported the preparations of several Biodiversity Chapters for Environmental Impact Assessment Reports.

1.3 Description of Proposed Development

1.3.1 Proposed Development Description

The Proposed Development comprises the construction of 469 no. residential units, a creche, an interpretive centre/café, and all associated site development works.

1.3.2 Site location

The Site of the Proposed Development comprises a greenfield site located at Castle Park in the townland of Castlelands, Mallow, County Cork. The Site lies just east of Mallow town centre and is situated 26km northeast of Cork City. The Site currently comprises several agricultural fields and associated vegetated boundaries. The national road N20 runs ca.1km to the west of the Site, connecting the cities of Cork and Limerick, with St. Joseph's (L1220) local road present to the north. The Site is bound by agricultural fields to the northeast, east, and residential lands to the north and west. The Site comprises a public park which runs adjacent to the Blackwater River to the south. To the west of the Site, there is an existing housing estate which

provides an access point into the scheme via Kingsfort Avenue. St. Joseph's local road will provide a second access point to the scheme further north.

The Site of the Proposed Development is located within Land Use Zoning consisting of residential zoned land parcel MW-R-01, *'Existing Residential/Mixed Residential and Other Uses'* zoned land and *'Green Infrastructure'* zoned Land within the Cork County Development Plan 2022-2028.

The location of the Site is presented in Figure 2 below.

1.3.2.1 Description of the Construction Phase

Given the size of the Proposed Development, all construction works will occur in a phased process. However, the entire Construction Phase will comprise the following elements:

- The works will involve the excavation of materials to facilitate the works.
- A site compound containing; site offices, canteen and toilet/changing facilities, temporary water supplies and wastewater disposal to the existing foul sewer network.
- Site access for the entirety of the Construction Phase will be via St. Joseph's Road, per the Site compound location shown in Figure 1.
- A secure compound and containers for storage of materials and plant;
- Temporary vehicle parking areas.
- A contained area for machinery refuelling and construction chemical storage.
- A contained area for washing out of concrete and mortar trucks.
- Security/heras fencing will be provided at the main site entrance and around all boundaries as required.
- Appropriate signage will be positioned at approach roads to the Site area so as to inform the public of the Site activities. Public access will not be permitted to the Site.
- All vehicles and personnel will be checked on entry to ensure no unauthorised access or fly-tipping.
- Water supply for the construction facilities will be taken from the mains supply which is adjacent to the Site in the existing Castlelands estate. Power for the pumps and small power requirements for construction activities will be supplied from diesel generators until the permanent site power supply is available.

For the duration of the Construction Phase, it is envisaged that the maximum working hours shall be 08:00 to 17:30 Monday to Friday (excluding bank holidays) and 08:00 to 14:00 Saturdays, and 08:00 to 14:00 periodically on Sundays & Bank Holidays.

On occasion, it may be necessary to carry out noisy activities outside of normal working hours. In such instances, prior consultation will be carried out with Cork County Council and local residents outlining the nature and reason for the works and their expected duration.

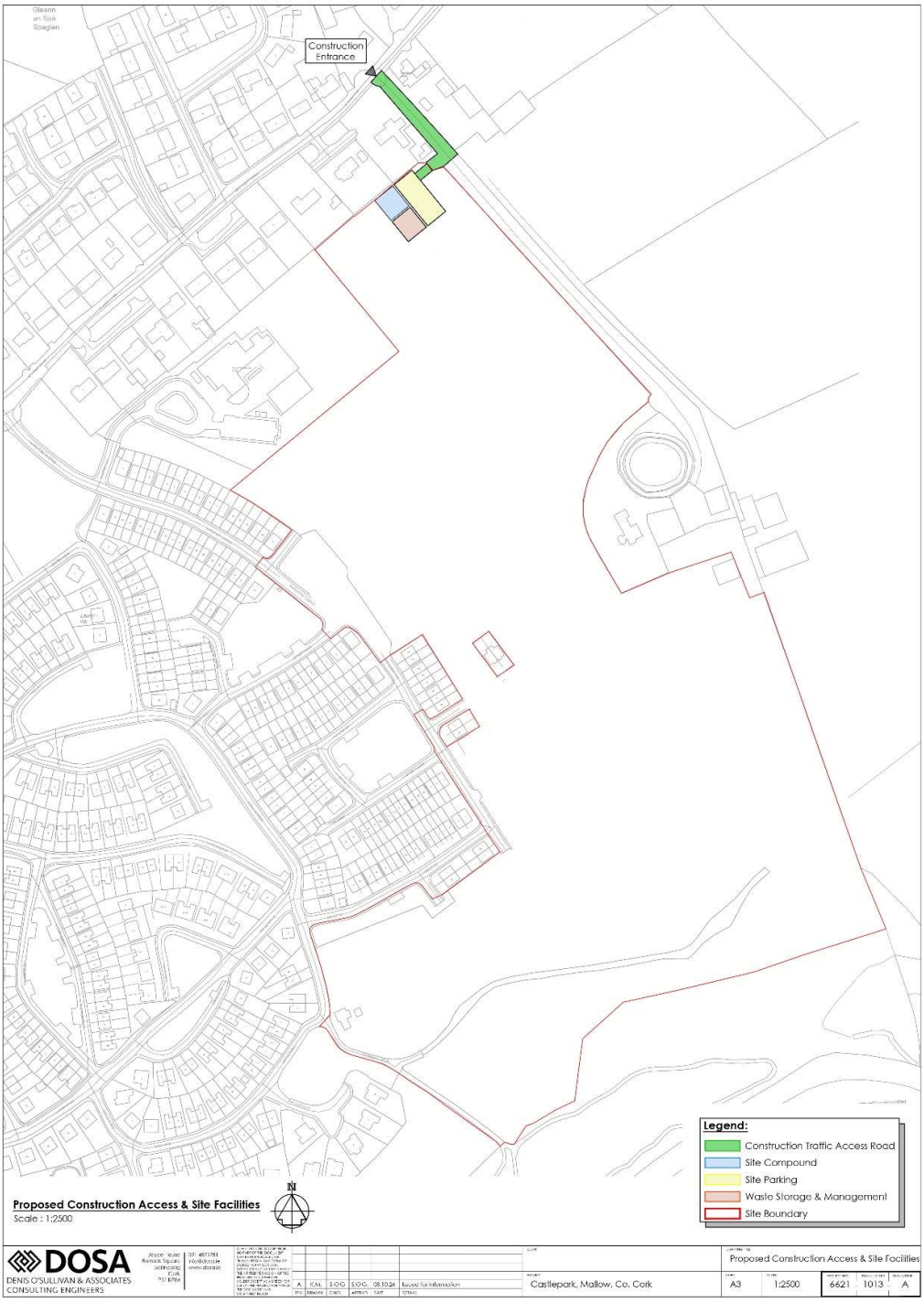

FIGURE 1. SITE ACCESS POINT AND LOCATION OF SITE COMPOUND (SOURCE: DOSA DRAWING 6621-1013-A).

1.3.2.2 Description of the Operational Phase

The Operational Phase will comprise residential use that is consistent with the neighbouring land use in the area, indefinitely.

1.3.2.2.1 Drainage and Water Supply

1.3.2.2.1.1 Surface water

The subject lands are drained naturally and have the benefit of direct access to the public stormwater network in the existing estate. The lands directly abut a stormwater network already laid within the existing estate along Kingsfort Avenue, Maple Square and Maple Avenue which outfalls directly into the River Blackwater as outlined in Figure 2 below. Prior to entering the existing system, the stormwater generated will be treated through a number of nature-based solutions in line with adopted SuDS measures as detailed below.

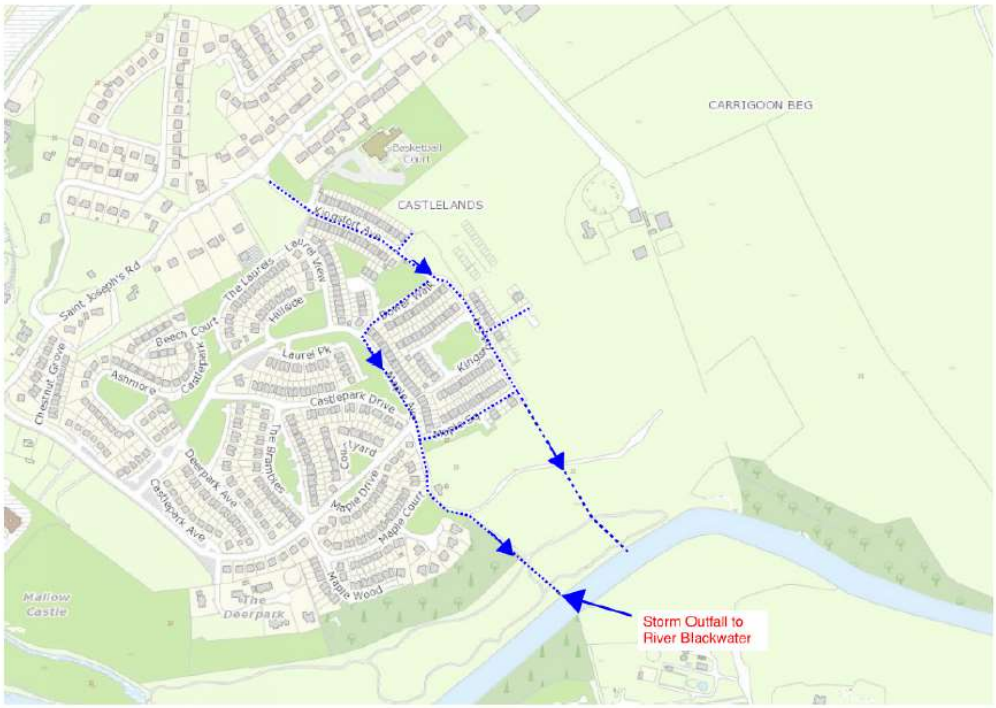

FIGURE 2. SHOWING THE LOCATION OF THE STORMWATER OUTFALL TO THE BLACKWATER RIVER FROM RESIDENTIAL ESTATE ADJACENT TO THE PROPOSED DEVELOPMENT (DOSA CONSULTING ENGINEERS, 2024).

The proposed surface/storm water drainage system has been designed to cater for all surface water runoff from all hard surfaces within the proposed development including roadways, roofs, parking areas etc.

Surface water generated from the proposed residential development will be conveyed through a proposed surface water network including SuDS and attenuated/managed on site prior to final discharge at Qbar greenfield run-off rates.

Surface water discharge rates from the proposed surface water drainage network will be controlled by a vortex flow control device (Hydrobrakes or equivalent) and

associated attenuation tanks. Surface water discharge will also pass via a full retention fuel/oil separators (sized in accordance with permitted discharge from the site).

The proposed surface water drainage network will collect surface water runoff from the site via a piped network prior to discharging off site via the attenuation tanks, flow control devices and separator arrangement as noted above. Prior to entering the existing system, the stormwater generated will be treated through a number of nature-based solutions in line with adopted SuDs measures.

1.3.2.2.1.1.1 SuDS Measures

The Site's surface water management infrastructure has been designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) which requires that the following design criteria be applied to all sites:

1. River water quality protection
2. River regime protection
3. Level of (surface) flooding for the Site
4. River flood protection

Following a comprehensive review of the above, the design approach for this project is detailed in the Infrastructure Report, and includes the following Sustainable Drainage Systems (SuDS):

- Permeable Pavements
- Greenroofs
- Rainwater Harvesting
- Tree Pits
- Attenuation Tanks
- Flow Control Device
- Petrol Interceptor
- Swales
- Management Train

(DOSA Consulting Engineers, 2024a)

1.3.2.2.1.1.2 SuDS Statement

For the purposes of objectivity and clarity, mitigation measures are not considered in the impact prediction. As per the judgment of the Court (Second Chamber) on the 15th of June 2023 (see Eco Advocacy CLG v An Bord Pleanala (Case C 721/21)), 'Article 6(3) of Directive 92/43 must be interpreted as meaning that, in order to determine whether it is necessary to carry out an appropriate assessment of the implications of a plan or project for a site, account may be taken of the features of that plan or project which involve the removal of contaminants and which therefore may have the effect of reducing the harmful effects of the plan or project on that site, where those features have been incorporated into that plan or project as standard features, inherent in such a plan or project, irrespective of any effect on the site'.

The above SUDS measures are incorporated into the surface water design of the Proposed Development as standard practice and, although they will result in the

removal of pollutants such as silt, and hydrocarbons from surface waters, they have not been included for the purpose of mitigating impacts on any European sites.

1.3.2.2.1.2 Foul Drainage

The Proposed Development will be connected to the foul sewer network that is already laid within the existing estate along Kingsfort Avenue, Maple Square and Maple Avenue. There is a 225mm gravity foul sewer south of Castlelands estate, terminating at Riverbank Walk. All foul waters entering the network will be treated at Mallow WWTP.

As noted in the conclusions of the assimilative capacity assessment of Environmental Limit Values (ELVs) for the Wastewater Treatment Plant (WwTP): "*Given the proposed stringent ELV's and the network upgrades, the operational discharges will support appropriate water chemistry conditions and will therefore not hinder the restoration of the conservation objectives (and FPM Regulation standards) for macroinvertebrates, filamentous algae, phytobenthos, macrophytes and siltation. Thereby ensuring that the Ecological Quality Objectives as set out in the fourth schedule of the European Communities Environmental Objectives (Fresh Water Pearl Mussel) Regulations (S.I. No. 296 of 2009) can be maintained.*" Thus, it should be noted that the Mallow WWTP upgrade works are complete and have capacity for the Proposed Development connection to the existing network. The facility is currently operational with the upgrades in place and is pending their amended licence from the EPA.

1.3.2.2.2 Landscape Plan

The proposed landscaping of the Site has been prepared by Simon Ronan Landscape Architects (SRLA, 2024). The landscape plan incorporates three design pillars, which respond to the uniqueness of place and the existing site sources, these are: Ecology and Biodiversity, Connectivity, and Community.

The masterplan showcases an ecological approach, incorporating sustainable features such as rainwater harvesting, native plantings, and wildlife-friendly habitats, promoting a harmonious coexistence between residents and the environment. Community spaces, including the Central Park and the Great Lawn, provide a vibrant heart for social interactions and shared experiences. With its emphasis on preserving the rich heritage of Castlelands, the landscape offers an idyllic and sustainable living experience for residents. The Greenway is the central spine of the entire project, bringing nature in the core of the Development and allowing a fluent interconnection between all the different landscape moments. The landscape design provides for the following key features:

- The perseveration of an Archaeological Site to the West;
- Inclusion of lawns and meadow grassland;
- Urban park;
- Playground;
- Shared surfaces;
- Nature park;
- Greenway;
- North park;
- Private gardens;

- Allotments, and;
- A sports area.

All of which are connected throughout.

The Landscape Plan includes the reinstatement of trees and grassland habitat lost due to Construction works. Whilst higher value trees will be retained, the majority of new trees planted as part of the Proposed Development will be native species and will comprise a mix of species already present on Site (Figure 5). In addition, the Proposed Development Site is located at a setback of 0.15km from the Blackwater River, and associated SAC, with the existing public park to the south intervening. The proposed nature park to the south of the Development, and the intervening public park directly south effectively provide a natural buffer between the Proposed Development Site and this important watercourse.

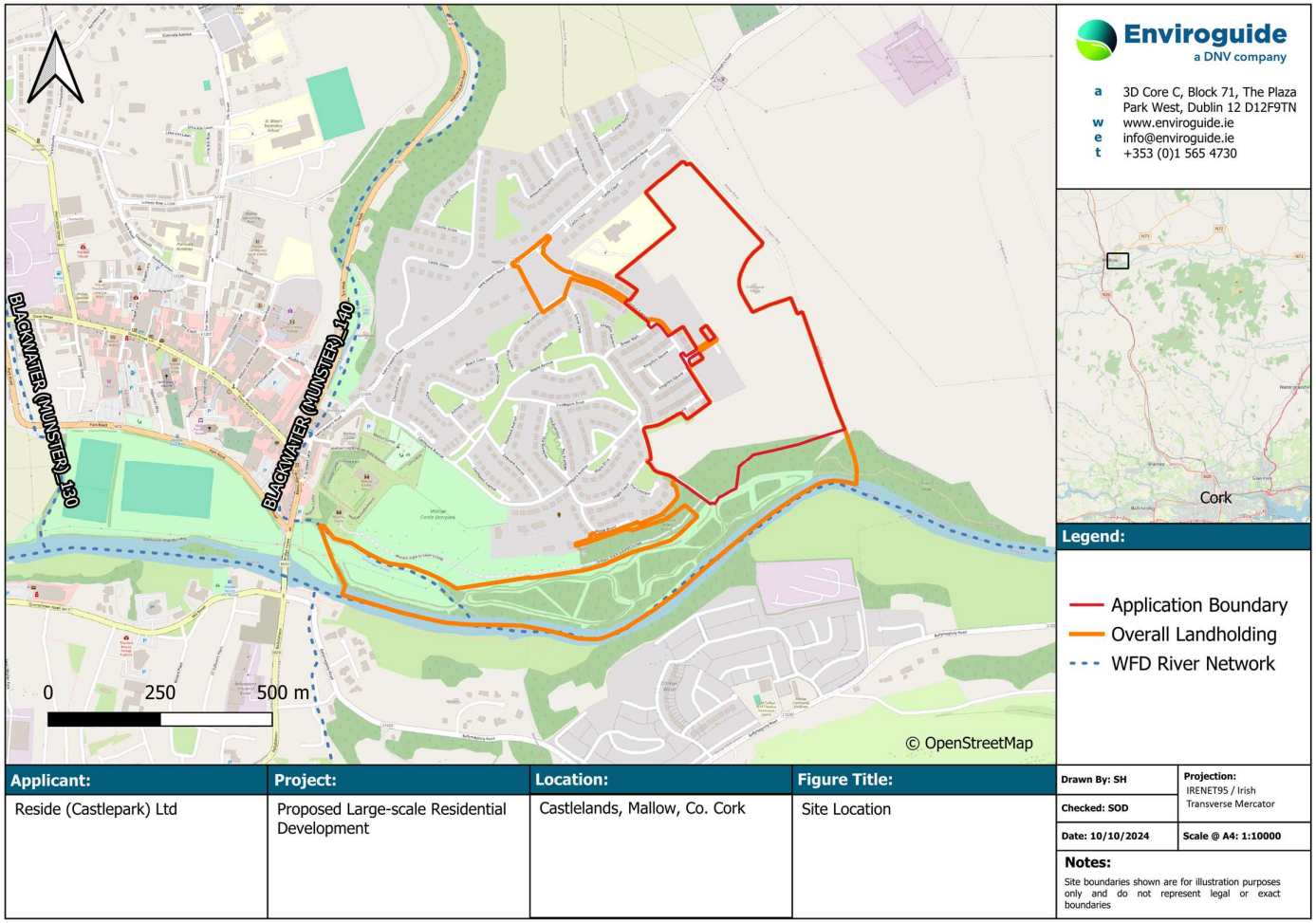

FIGURE 3. SITE LOCATION

FIGURE 4. PROPOSED SITE LAYOUT (DEADY GAHAN, 2024).

FIGURE 5: MASTERPLAN LANDSCAPE PLAN (SIMON RONAN ARHCITECTS).

2 LEGISLATIVE AND POLICY CONTEXT

2.1 Legislative Background

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protected Areas (SPAs). The Habitats Directive has been transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011). It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected sites throughout the European Community.

SACs and SPAs are collectively known as "Natura 2000" or "European" sites. SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the sites; from these the conservation objectives of the site are derived.

An 'Appropriate Assessment' (AA) is an assessment required prior to the grant of planning permission to determine whether a plan or project, based on best scientific knowledge, will have an adverse effect on the integrity of a European site, either alone or in combination with other plans and projects. It is required for any plan or project not directly connected with or necessary to the management of a site but likely to have a significant effect on it.

An AA is required under Article 6 of the Habitats Directive where a project or plan may give rise to significant effects upon a Natura 2000 site. Paragraph 3 states that:

"*6(3) 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."*

2.1.1 Legislative Context

The obligations in relation to Appropriate Assessment have been implemented in Ireland under Part XAB of the Planning and Development Act 2000, as amended ("the 2000 Act"), and in particular Section 177T and Section 177V thereof in relation to Natura Impact Statements and Appropriate Assessment. The relevant provisions of Section 177T and 177V are set out below:

"***177T.—*** *(1) In this Part— (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.

(2) 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."

(3) …

(4) The applicant for consent for proposed development may, or if directed in accordance with subsection (5) by a competent authority, shall furnish a Natura impact statement to the competent authority in relation to the proposed development.

(5) At any time following an application for consent for proposed development a competent authority may give a notice in writing to the applicant concerned, directing him or her to furnish a Natura impact statement.

(6) ...

(7) (a) Without prejudice to subsection (1) a Natura impact report or a Natura impact statement shall include all information prescribed by regulations under section 177AD .

(b) Where appropriate, a Natura impact report or a Natura impact statement shall include such other information or data as the competent authority considers necessary to enable it to ascertain if the draft Land use plan or proposed development will not affect the integrity of the site."

"177V.— *(1) An appropriate assessment carried out under this Part shall include a determination by the competent authority under Article 6.3 of the Habitats Directive as to whether or not a draft Land use plan or proposed development would adversely affect the integrity of a European site and an appropriate assessment shall be carried out by the competent authority, in each case where it has made a determination under section 177U(4) that an appropriate assessment is required, before—*

(a) the draft Land use plan is made including, where appropriate, before a decision on appeal in relation to a draft strategic development zone is made, or

(b) consent is given for the proposed development.

(2) In carrying out an appropriate assessment under subsection (1) the competent authority shall take into account each of the following matters:

(a) the Natura impact report or Natura impact statement, as appropriate;

(b) any supplemental information furnished in relation to any such report or statement;

(c) if appropriate, any additional information sought by the authority and furnished by the applicant in relation to a Natura impact statement;

(d) any additional information furnished to the competent authority at its request in relation to a Natura impact report;

(e) any information or advice obtained by the competent authority;

(f) if appropriate, any written submissions or observations made to the competent authority in relation to the application for consent for proposed development;

(g) any other relevant information.

(3) Notwithstanding any other provision of this Act, or, as appropriate, the Act of 2001, or the Roads Acts 1993 to 2007 and save as otherwise provided for in sections 177X, 177Y, 177AB and 177AC, a competent authority shall make a Land use plan or give consent for proposed development only after having determined that the Land use plan or proposed development shall not adversely affect the integrity of a European site.

(4) Subject to the other provisions of this Act, consent for proposed development may be given in relation to a proposed development where a competent authority has made modifications or attached conditions to the consent where the authority is satisfied to do so having determined that the proposed development would not adversely affect the integrity of the European site if it is carried out in accordance with the consent and the modifications or conditions attaching thereto."

2.2 Policy Context

2.2.1 Cork County Development Plan (2022 – 2028)

While the County Development Plan in its entirety is relevant to this Development and can be referred to separately. Policies, principles and objectives of the Cork County Development Plan (CCDP) 2022 – 2028 that are of particular relevance to this Report are outlined in this section.

Volume 1 of the CCDP (2022-2028) comprises the main policy material for the CDP, with the following chapters being of particular relevance to this report:

- Chapter 14 – Green Infrastructure and Recreation
- Chapter 15 – Biodiversity and the Environment
- Chapter 16 – Built and Cultural Heritage

Chapter 14 lists a number of objectives concerning green (and blue) infrastructure and recreation, which can be referred to. However, the countywide objectives for green and blue infrastructure, which underpin these objectives, include (GI-14-1):

- Create an integrated and coherent green infrastructure for the County by encouraging the retention and strengthening of substantial networks of green space in urban, urban fringe and the wider countryside to serve the needs of communities now and in the future and as a key contributor to climate mitigation and climate adaptation.

- Develop the green infrastructure network (including green corridors) to ensure the conservation and enhancement of biodiversity, including the protection of Natura 2000 European Sites, the provision of accessible parks, open spaces and recreational facilities (particularly within settlements), the sustainable management of water, the maintenance of landscape character and the protection and enhancement of architectural and archaeological heritage.
- Capitalise on and highlight the multifunctional benefits/opportunities (ecosystem services) that green and blue infrastructure can present. Seek to advance the use of nature based solutions as an alternative to traditional infrastructure. Seek to advance an ecosystem services approach and ecosystem services valuation as a decision-making tool in plans and projects.
- Recognise rivers and streams (and their wider riparian corridors) as one of the natural foundations for multi-functional green and blue infrastructure corridors. Seek to strengthen ecological linkages which watercourses have with other water dependent habitats as well as with hedges/treelines, woodland and scrub in the wider landscape.
- Ensure that all settlements have an adequate level of quality green and recreational infrastructure (active and passive) taking into account existing deficits, planned population growth as well as the need to serve their surrounding hinterlands.
- Achieve a net gain in green infrastructure through the protection and enhancement of existing assets and through the provision of new green infrastructure as an integral part of the planning process. Encourage the provision of different green infrastructure elements, such as trees in urban areas and green roofs in town centres, so that a net gain in green infrastructure is achieved over the lifetime of this Development Plan.
- Seek to increase investment in green infrastructure provision and maintenance by accessing relevant EU funding mechanisms and national funding opportunities including tourism related funding.
- Integrate the provision of green infrastructure with infrastructure provision and replacement, including walking and cycling routes, as appropriate, while protecting biodiversity and other landscape resources.
- Support initiatives and programmes which seek to strengthen the green and blue infrastructure and work with communities and other stakeholders in furthering the green and blue infrastructure concept.

The following objectives are outlined in Chapter 15 in relation to protecting biodiversity and the environment:

- BE-15-1: To support and comply with national and biodiversity protection policies.
- BE-15-2: To protect sites, habitats, and species.
- BE-15-3: Local Authority Plan making;
    - Ensure that biodiversity issues are considered at the earliest possible stages of plan making;
    - Ensure that plans and strategies comply with nature conservation legislation and policy as required, and;

    - Carry out ecological impact assessment of plans and strategies as appropriate.
- BE-15-4: Local authority development and projects;
    - Ensure that biodiversity protection is considered at design stage for works and development planned and progress in Cork County Council and that all such projects comply with nature conservation legislation and policy as required;
    - Fulfil appropriate assessment and environmental impact assessment requirements and carry out ecological impact assessments in relation to local authority plans and projects as appropriate.
- BE-15-5: Biodiversity on council owned land and managed land and property
- BE-15-6: Biodiversity and new development.
- BE-15-7: Control of invasive alien species.
- BE-15-8: Trees and Woodlands.
- BE-15-12: Air Quality.
- BE-15-13: Noise and light emissions.
- BE-15-17: Waste prevention and management.

The following objectives are outlined in Chapter 16 in relation to protecting built and cultural heritage:

- HE-16-1: County Heritage Plan;
    - To continue to implement the county heritage plan (2005) in partnership with relevant stakeholders and any successor of this document.
- HE-16-9: Archaeology and infrastructure schemes.
- HE-16-10: Management of monuments within development sites.
- HE-16-16: Protection of non-structural elements of built heritage;
    - Protect non-structural elements of built heritage. These can include designed garden/garden features, masonry walls, railings, follies, gates, bridges, shopfront and street furniture.
- HE-16-18: Architecture and conservation areas; Conserve and enhance the special character of the Architectural Conservation Areas included in this Plan. The special character of an area includes its traditional building stock, material finishes, spaces, streetscape, shopfronts, landscape and setting. This will be achieved by;
    - Protecting all buildings, structures, groups of structures, sites, landscapes and all other features considered to be intrinsic elements to the special character of the ACA from demolition and non-sympathetic alterations.
    - Promoting appropriate and sensitive reuse and rehabilitation of buildings and sites within the ACA and securing appropriate infill development.
    - Ensure new development within or adjacent to an ACA respects the established character of the area and contributes positively in terms of design, scale, setting and material finishes to the ACA.
    - Protect structures from demolition and non-sympathetic alterations.
    - Promoting high quality architectural design within ACAs.

- Seek the repair and re-use of traditional shopfronts and where appropriate, encourage new shopfronts of a high quality architectural design.
- Ensure all new signage, lighting advertising and utilities to buildings within ACAs are designed, constructed and located in such a manner they do not detract from the character of the ACA.
- Protect and enhance the character and quality of the public realm within ACAs. All projects which involve works within the public realm of an ACA shall undertake a character assessment of the said area which will inform a sensitive and appropriate approach to any proposed project in terms of design and material specifications. All projects shall provide for the use of suitably qualified conservation architects/designers.
- Protect and enhance the character of the ACA and the open spaces contained therein. This shall be achieved through the careful and considered strategic management of all signage, lighting, utilities, art works/pieces/paintings, facilities etc to protect the integrity and quality of the structures and spaces within each ACA.
- Ensure the protection and reuse of historic street finishes, furniture and features which contribute to the character of the ACA.

In addition to the above, policies and objectives of the Cork County Development Plan 2022 – 2028 (Volume three – North Cork) (CCDP) that are of relevance to this NIS Report are outlined in Section 2.4, those of particular note are listed below:

- Sustainable population growth and supporting development in Mallow, while securing the objectives of the relevant River Basin Management Plan, and the River Blackwater Special Area of Conservation (MW-GO-02).
- New development should be sensitively planned and designed to protect the green infrastructure, biodiversity, and landscape assets of Mallow town (MW-GO-03).
- All new development will need to make provision for Sustainable Urban Drainage Systems (SuDS) and provide adequate storm water infrastructure. Surface water Management and Disposal should be planned in an integrated way in consideration with land use, water quality, amenity and habitat enhancements as appropriate (MW-GO-04).
- Protect and enhance the habitat, landscape, visual and amenity qualities of the River Blackwater and its flood plain so that they can contribute to the environmental diversity of the area for future generations and be used for recreation and other compatible uses during the lifetime of the Plan (MG-GO-13).
- All proposals for development within the areas identified as being at risk of flooding will need to comply with Objectives in this Plan. In planning development located upstream of/adjacent to the defended area in Mallow, due regard must also be had to the potential flood impacts of development, and its potential impact on the defended area in particular (MW-GO-14).

2.2.2 Cork County Biodiversity Action Plan (2014-2019)

Cork County Biodiversity Action Plan (2014-2019) is set out to protect and improve biodiversity through the following aims, objectives and action plans:

- Objective 1 – To review biodiversity information for County Cork and to prioritise habitats and species for conservation action.
- Objective 2 – To collect data and use it to inform conservation action and decision making.
- Objective 3 – To incorporate positive action for biodiversity into local authority actions and policy.
- Objective 4 – To promote best practice in biodiversity management and protection.
- Objective 5 – To facilitate the dissemination of biodiversity information.
- Objective 6 – To raise awareness of County Cork's biodiversity and encourage people to become involved in its conservation.

Note that this Action Plan has not been updated since its term, however the Planning Authority intends to commence the process of reviewing the County Biodiversity Action Plan within 12 months of the adoption of the County Development Plan.

2.3 Stages of Appropriate Assessment

The AA process is a four-stage process. Each stage requires different considerations, assessments and tests to ultimately arrive at the relevant conclusion for each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

The four stages of an AA, can be summarised as follows:

- **Stage 1: *Screening*.** The Screening for AA considers whether a plan or project is directly connected to or necessary for the management of a European site, or whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.

- **Stage 2: *Natura Impact Statement (NIS).*** Where Stage 1 determines that significant effects are likely, uncertain or unknown, the preparation of a NIS is required. The NIS must include a scientific examination of evidence and data to classify potential impacts on any European site(s) in view of their conservation objectives in the absence of mitigation. The NIS will identify appropriate mitigation to remove the potential for likely significant adverse effects on any European site(s). If the competent authority determines that the plan or project would have an adverse effect on the integrity of any European site(s) despite mitigation, it can only grant consent after proceeding through stages 3 and 4.

- **Stage 3: *Assessment of alternative solutions***. If the outcome of Stage 2 is negative i.e., adverse impacts to the sites cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned. This stage examines alternative solutions to the proposal.

- **Stage 4:** ***Assessment where no alternative solutions exist and where adverse impacts remain***. The final stage is the main derogation process examining whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project to adversely affect a European site, where no less damaging solution exists.

The Habitats Directive promotes a hierarchy of avoidance, mitigation, and compensatory measures. First the project should aim to avoid any negative effects on European sites by identifying possible effects early in the planning stage and designing the project to avoid such effects. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, a refusal for planning permission may be recommended. In this case, the project will generally only be considered where no alternative solutions are identified and the project is required for IROPI, or, in the case of priority habitats, considerations of health or safety, or beneficial consequences of primary importance for the environment or to other IROPI. Then compensation measures are required for any remaining adverse effects.

2.4 Stage 1: Appropriate Assessment Screening Conclusion

An AA Screening Report was prepared for the Proposed Development by Enviroguide Consulting in October 2024.

The conclusion of the AA Screening Report is as follows:

"In conclusion, on the basis of the screening exercise carried out above, and on the basis of the best scientific knowledge available, the possibility of significant effects on the Blackwater River (Cork/Waterford) SAC (002170) whether arising from the project itself or in combination with other plans and projects, cannot be excluded.

Thus, it is required to proceed to Stage 2 of the AA process; and the preparation of a NIS is required."

As such, this NIS will assess the potential effects of the Proposed Development on

- Blackwater River (Cork/Waterford) SAC (002170)

This site is linked to the Proposed Development via hydrological, hydrogeological, land and air pathways.

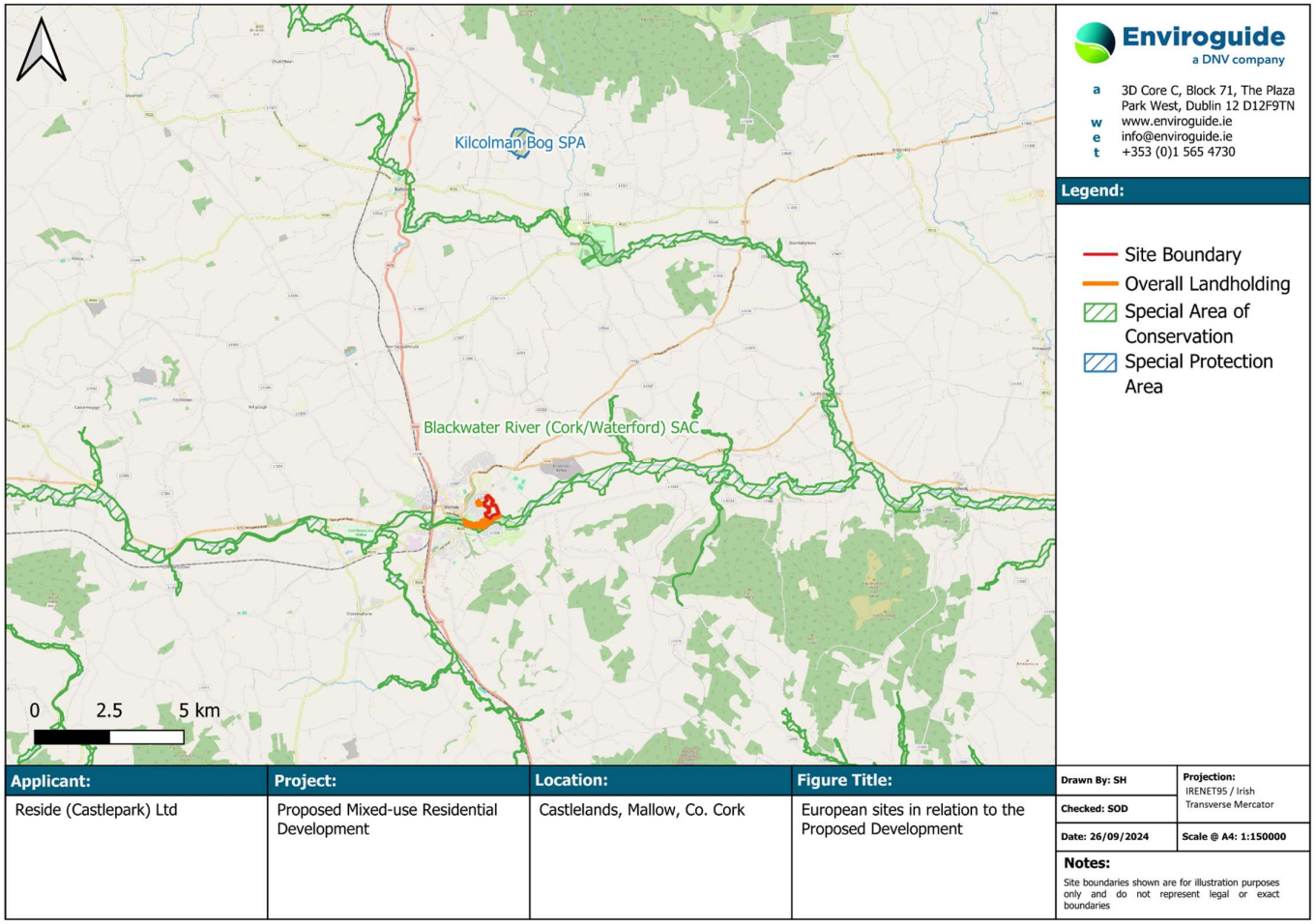

FIGURE 6. EUROPEAN SITES IN RELATION TO THE PROPOSED DEVELOPMENT SITE (ENVIROGUIDE, 2024)

3 NIS METHODOLOGY

3.1 Guidance

This NIS has been prepared in accordance with the following guidance:

- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* Circular NPW 1/10 & PSSP 2/10;
- *Communication from the Commission on the precautionary principle* (European Commission, 2000);
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019);
- *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 (European Commission, 2021)*;
- *Appropriate Assessment Screening for Development Management, OPR Practice Note PN01, Office of the Planning Regulator March 2021 (OPR, 2021);* and
- *Amendments to section 42 of the Planning and Development Act 2000, as amended and associated Planning and Development Regulations 2001. Department of the Environment, Heritage and Local Government. (2021). Circular Letter: EUIPR 01/2021.*

3.2 NIS Steps

This NIS has been prepared following the steps described below:

- Description of the baseline existing environment at the Site of the Proposed Development;
- Review and description of available data for the relevant European site(s) potentially affected as identified in the Screening Report (Enviroguide, 2023);
- Identification and description of potential effects on the relevant European site(s) and their designated QIs/SCIs;
- Assessment of the likely significance of the effects and/or impacts identified on the relevant QIs/SCIs in view of their Site Specific Conservation Objectives (SSCOs) where available;
- Description and characterisation of other projects or plans that in combination with the Proposed Development have the potential for having significant effects on the relevant QIs/SCIS;
- Identification of appropriate mitigation measures to remove the likelihood of significant effects on any European site(s) and their QIs/SCI; and

- Exclusion of sites where it can be objectively concluded that there will be no significant effects once mitigation measures are adhered to.

3.3 Desk Study

A desktop study was carried out to collate and review available information, datasets and documentation sources relevant for the completion of the NIS. The desk-top study, completed in October 2024, relied on the following sources:

- Information on the network of European sites, relevant boundaries, QIs and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at *www.npws.ie* and the European Environment Agency (EEA) at *https://natura2000.eea.europa.eu/;*
- Information on the status of EU protected habitats and species in Ireland, obtained from the NPWS Article 17 reports;
- Text summaries of the relevant European sites taken from the respective Site Synopses for each site, available at *www.npws.ie*;
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at www.*gis.epa.ie*;
- Information on bedrock, groundwater, aquifers and their statuses, obtained from Geological Survey Ireland (GSI) at *www.gsi.ie*;
- Information on underlying soils, obtained from Teagasc or EPAs National Soils Map at https://www.teagasc.ie/ and https://gis.epa.ie/EPAMaps/;
- Water quality. Guidance standard on monitoring freshwater pearl mussel (*Margaritifera margaritifera*) populations and their environment (I.S. EN 16859:2017).
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe, Bing and Ordnance Survey Ireland; and
- Information on the extent, nature and location of the Proposed Development, provided by the applicant and their design team, including information garnered from any site investigations (SI) (for example; any specific hydrological, hydrogeological, flood risk, or Arboricultural assessments) where they were undertaken.

The above list is not exhaustive, and as such, a comprehensive list of all the specific documents and information sources consulted in the completion of this report is provided in Section 6 - *References*.

3.4 Field Surveys

A range of field surveys have been carried out at the Site to date. These are summarised in Table 1. Full details on the methods and results of the field surveys listed are included within the Ecological Impact Assessment (EcIA) Report submitted with this application under separate cover. With the exception of the preliminary habitat and invasive flora surveys undertaken in February 2023, all surveys were carried out

at the appropriate time of year by suitably qualified ecologists. Note that an updated site walkover was carried out in July 2024, within the appropriate season for habitat and invasive flora surveys. No limitations to field surveys were encountered which would prevent robust conclusions being drawn as to the potential impacts of the Proposed Development.

TABLE 1. FIELD SURVEYS UNDERTAKEN AT THE PROPOSED DEVELOPMENT SITE.

Survey	Surveyor	Dates
Preliminary Habitat and Invasive Flora Survey	Enviroguide Consulting (CBH, GK)	07th February 2023
Mammal Survey	Enviroguide Consulting (CBH, GK)	07th February 2023
Bird Scoping Survey	Enviroguide Consulting (CBH, GK)	07th February 2023
Preliminary Bat Roost Assessment Survey	Enviroguide Consulting (CBH, GK)	07th February 2023
Bat Roost Emergence Survey (Building C)	Enviroguide Consulting (CBH, GK)	11th May 2023
Bat Roost Emergence Survey (Building A)	Enviroguide Consulting (CBH, GK, EJD)	15th May 2023
Breeding Bird Survey	Enviroguide Consulting (CBH, GK)	15th May 2023
Mammal Survey	Enviroguide Consulting (CBH, GK)	15th May 2023
Habitat and Invasive Flora Survey	Enviroguide Consulting (CBH, GK)	29th May 2023
Bat Roost Emergence Survey (Building A)	Enviroguide Consulting (CBH, GK)	29th May 2023
Site walkover to establish site conditions and to inform surface water mitigation strategy	Enviroguide Consulting (TR)	15th July 2024

3.5 Impact Prediction

Potential impacts on the relevant European site(s) identified during the AA Screening are based on information regarding their QIs and/or SCI species, and the attributes and targets relating to their SSCOs where available. These have been informed by the desk study and any field surveys carried out prior to the preparation of this Report.

Impact prediction is based on the Source-Pathway-Receptor (S-P-R) model. The following describes the steps of the S-P-R approach taken in this NIS:

- Potential sources of effects were identified based on the Proposed Development description and details, including changes to potentially suitable *ex-situ* habitats at the Site (i.e., habitats utilised by Special Conservation Interest (SCI) bird species outside of their designated SPAs).
- Up-to-date GIS spatial datasets for water catchments as well as any information from relevant site investigations and/or field surveys were used to identify pathways to QIs/ SCIs within the relevant European site(s) that occur within the zone of influence of the Proposed Development:

- The catchment data were used to establish or discount potential hydrological connectivity between the Proposed Development and any QIs/SCIs.
- Groundwater and bedrock information used to establish or discount potential hydrogeological connectivity between the Proposed Development and any QIs/SCIs.
- Air and land connectivity assessed based on Proposed Development details and proximity to QIs/SCIs.
- Consideration of potential indirect pathways, e.g., impacts to flight paths, *ex-situ* habitats, etc.

- Identification of potential impacts for those QIs/SCIs linked to the Proposed Development via identified S-P-R connections.

Where the preceding steps identified any potential for adverse impacts on any QIs/SCIs for the relevant European site(s), appropriate mitigation measures to eliminate the potential for significant adverse effects are identified in this Report.

3.6 Limitations

No limitations were encountered which would prevent robust conclusions being drawn as to the potential impacts of the Proposed Development on the relevant European sites. However, it should be noted that vegetation clearance was undertaken prior to the Enviroguide site assessment. No potential for significant impacts on the Blackwater River (Cork/Waterford) SAC as a result of this has been identified: for full details please refer to the accompanying AA Screening Report (Enviroguide 2024).

4 NATURA IMPACT STATEMENT

4.1 Existing Environment

4.1.1 Desk Study Results

4.1.2 Hydrology

The Site of the Proposed Development is located within the Blackwater (Munster) river catchment and the Blackwater [Munster]_SC_090 sub catchment. The Site lies within the Blackwater (MUNSTER)_140 sub basin (EPA, 2024). The Site's existing topography is relatively flat in areas but falls to a steep slope towards the southern portion of the site as it connects to the existing public park. The Site, which slopes naturally to the south, drains freely towards the Blackwater River, with ground elevations ranging from 87.5 meters above Ordnance Datum (mOD) in the north of the Site to 43mOD to the south of the Site (Figure 7). As such, is an important site in the context of supporting the hydrological regime of the Blackwater River. There are no drainage ditches, sewers/drains or waterbodies present at the Site.

FIGURE 7. SHOWING THE TOPOGRAPHY OF THE SITE OF THE PROPOSED DEVELOPMENT AND CLIENT LANDHOLDING.

The closest mapped (EPA, 2024) surface waterbody to the Site is the Blackwater River (IE_SW_18B021800) which is located 80m directly South of the Site, adjacent to the existing parklands located to the south (the parklands lie within the clients overall landholding but outside of the Site boundary for this Development). This river is a 5th order river which flows west to east, before converging with the Upper Blackwater M Estuary transitional waterbody (EU Code: IE_SW_020_0500) approximately 57.76km downstream of the Site. Upper Blackwater M Estuary transitional waterbody flows initially east before turning south and converging with the Lower Blackwater M Estuary/Youghal Harbour transitional waterbody (EU Code: IE_SW_020_0100) a

further 18.15km downstream. The Lower Blackwater M Estuary/Youghal Harbour transitional waterbody flows, in a southerly direction, a further 13.60km downstream before discharging to the Youghal Bay coastal waterbody (EU Code: IE_SW_020_0000).

The WFD status (2016-2021) for the Blackwater River is *Good*, while the river waterbody risk is currently *Not at Risk* (EPA, 2024). The Blackwater River forms part of the Blackwater River (Cork/Waterford) SAC (002170).

There are two EPA monitoring points at the Mallow Viaduct (Station ID: RS18B021510 and RS18B021500) which are located ca. 2km to west of the Site and upstream of where the East Baltydaniel watercourse joins the Blackwater River. These stations recorded a Q-value of 3-4, *Moderate* in 2021.

The EPA water quality monitoring data for the stations on the Blackwater River located closest to the Site is summarised in Table 2. The latest reported Q-value results indicate that water quality in the Blackwater River in the vicinity of the Site is good.

TABLE 2. EPA MONITORING STATIONS AND ASSIGNED Q VALUES (2021).

EPA Monitoring Station name	Station Code	Location from Site	Distance from Site	Assigned Q value
Rly Br, Mallow (LHS)	RS18B021500	West	1.2km	4 “Good”
Rly Br, Mallow (RHS)	RS18B021510	West	1.2km	3-4 “Moderate”
Northeast of Ballymagooly	RS18B021800	Southeast	2.3km	4 “Good”

4.1.3 Geology and Hydrogeology

The Site of the Proposed Development is situated on the Mitchelstown groundwater body (IE_SW_G_082), which is classified as having “Good” status (WFD Status 2016-2021). The aquifer type in the area is Regionally Important Aquifer-Karstified (Diffuse) (Rkd). The underlying bedrock is mapped by GSI and is classified as ‘Pale-grey massive mud-grade limestone’ to the north and ‘Massive unbedded lime-mudstone’ to the south (New Codes: CDHAZE/CDWAUL) (GSI, 2024).

The subsoil beneath the Site is Shale and Sandstone Till (Namurian) with Bedrock at or Close to the Surface to the east (EPA, 2024). The SIS National Soils data classifies the Site as Urban (GSI, 2023). According to the Teagasc soil maps the soils beneath the Proposed Development Site consist of Deep well drained mineral soils (GSI, 2024). Corine (2018) land cover at the Site comprises ‘Agricultural Areas’ with ‘Urban Areas’ extending west from the Site, and ‘Agricultural Areas’ extending east from the Site.

The Proposed Development is located on a regionally important gravel aquifer – Karstified diffuse (EPA, 2024). The groundwater vulnerability across the Site is mapped as having ‘Extreme’ vulnerability to contamination from human activity, with ‘High’ vulnerability to the west at the existing Castlelands estate, and ‘Rock at or near Surface or Karst’ in the east and south of the Site (GSI, 2024).

The quaternary sediments beneath the majority of the Site are mapped as Till derived from Namurian sandstones and shales, while the subsoil beneath the eastern boundary of the Site is mapped as Bedrock outcrop or subcrop (Rck) (GSI, 2024).

The Waterbody Status for river, groundwater, transitional and coastal water bodies relevant to the Site as recorded by the EPA (2024) in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003), Part IV of the European Communities Environmental Objectives (Surface Waters) Regulations 2009 and Part IV of the European Communities Environmental Objectives (Groundwater) Regulations 2010, are provided in Table 3.

TABLE 3. WFD RISK AND WATER BODY STATUS (EPA, 2016-2021).

Waterbody Name	Water body; EU code	Location from Site	Distance from Site (km)	WFD water body status (2016-2021)	WFD 3rd cycle Risk Status	Hydraulic Connection to the Site
Surface Water Bodies						
Blackwater River [Munster]	IE_SW_18B021720	South	0.15km	Good	Not At risk	Via overland surface water run-off and via groundwater
Transitional Water Bodies						
Upper Blackwater M Estuary	IE_SW_020_0500	East	57.76km	Moderate	At Risk	Downstream of the Blackwater River
Lower Blackwater M Estuary / Youghal Harbour	IE_SW_020_0100	East	>70km	Moderate	At Risk	Downstream of the Blackwater River
Coastal Water Bodies						
Youghal Bay	IE_SW_020_0000	Southeast	>70km	Moderate	At Risk	Downstream of the Blackwater River
Western Celtic Sea	IE_SW_010_0000	Southeast	>70km	High	Not at risk	Downstream of the Blackwater River
Groundwater Bodies						
Mitchelstown Groundwater Body	IE_SW_G_082	N/A	N/A	Good	At Risk	Underlying groundwater-body

4.2 Relevant Field Survey results

4.2.1 Habitats & Flora

While the ground was relatively bare (ED2 spoil and bare ground) during the initial Site visit in February 2023 due to previous clearance works taking place (in association with the previously granted planning development which was subsequently abandoned), the assessment was backed up by a follow up habitat and flora survey within the optimal botanical period in May 2023, as well as a desktop study of historical satellite imagery of the Proposed Development Site (Google Earth, 2023). The results showed that the dominant habitat type within the Site is dry meadows and grassy verges (GS2), with areas of scrub (WS1) and scattered trees and parkland (WD5) revegetating in parts. A small treeline (WL2) and buildings and artificial surfaces (BL3) were located to the west, while there was some refuse/waste (ED5) to the east and a stone wall (BL1) habitat was observed along the eastern/southeastern boundary.

Ground species present in this habitat include dock (*Rumex obtusifolius*), creeping buttercup (*Ranunculus repens*), lesser trefoil (*Trifolium dubium*), bird's foot trefoil (*Lotus corniculatus*), clover (*Trifolium repens*), daisy (*Bellis perennis*), common valerian (*Valeriana officinalis*), vetch (*Vicia sativa*), bramble (*Rubus fructicosus*), silverweed (*Potentilla anserina*), willowherb (*Chamaenerion angustifolium*), ground ivy (*Glechoma hederacea*), and various grass species, but predominantly perennial ryegrass (*Lolium perenne*).

Immature grey willow (*Salix cinerea*) trees were scattered predominantly to the west, which borders the rear gardens of the existing residential estate, although they were also found sparsely interspersed throughout the Site, particularly to the southwest.

The treeline habitat to the west, adjacent to the existing local road in Kingscourt Avenue, comprised a variety of semi-mature/mature tree species such as sycamore (*Acer pseudoplatanus),* willow (*Salix cinerea*), beech (*Fagus sylvatica*), and cherry plum (*Prunus cerasifera*). It is noted that this habitat is being retained.

Two invasive plant species were recorded on Site, namely butterfly bush (*Buddleja davidii*), and New Zealand flax (*Phormium tenax*). Butterfly bush was observed growing on areas of hardstanding/artificial surfaces to the west of the Site, while New Zealand flax was observed growing behind a rear garden, to the west of the Site, just behind a dense willow tree canopy.

No rare or protected plant species were observed during the ecological walkovers.

Adjacent and linked habitats outside the Site boundary include the following:

- BC1 – Arable Crops (located in fields directly east of the Site)
- FW2 – Depositing/Lowland River (the Blackwater River, located c.0.15km south of the Proposed Development)
- GA2 – Amenity Grassland (located south of the Proposed Development in the public park adjacent to the FW2 habitat)
- WS2 – Immature Woodland (planted in small sections throughout the park to the south)

In addition, areas of scrub and scattered trees were also located south of the Proposed Development in the public park (which forms part of the overall client landholding area but is not being developed), while an Oak (*Quercus sp*.) treeline was recorded along the north eastern boundary (outside the Site boundary) and a hedge of Cherry Laurel (*Prunus laurocerasus)* located east of the Site, bounding the neighbouring, existing residential dwelling, as-well as bounding the existing school to the north.

The walkover survey carried out in July 2024 did not note any significant changes to the previously recorded site conditions, including habitats and flora.

4.2.2 Fauna

4.2.2.1 Mammals

During the ecological walkovers the Site was checked for any evidence of fauna presence/activity on Site. No evidence of badger (*Meles meles*) activity was observed. There were some mammal trails traversing the Site which could be used by Fox (*Vulpes vulpes*), which is not subject to any legal protection in Ireland. A local domestic cat (*Felis catus*) was observed using the Site to hunt on several occasions. Fox (*Vulpes vulpes*) was heard and observed on the 11th of May 2023 prior to the commencement of a bat emergence survey within the southwestern corner of the Site boundary.

Droppings of European Rabbit (*Oryctolagus cuniculus*) were observed in February, while visual observations for this species was made in May 2023. They were largely concentrated along the eastern extent, near the stone wall habitat, which borders improved agricultural grassland.

Other, smaller mammals such as hedgehog (*Erinaceous europaeus*) and pygmy shrew (*Sorex minutus)* were not observed, although the treeline habitat to the west could provide suitable shelter/commuting habitat for these species.

Similarly, the stone wall habitat could provide suitable refuge habitat for common lizard (*Zootoca vivipara*), and individual bat species (although limited). The treeline to the west could also provide potentially suitable commuting and foraging habitat for bats.

Regarding bat species, the vacant buildings were considered to provide potential roost habitat, and so subsequent surveys were carried out in May 2023 to determine if any bat species were using this habitat as a roost. However, the findings of these surveys determined that bats were not using these buildings.

While outside of the Site boundary (80m south), it was noted that the Blackwater River provides suitable habitat for Otter and various aquatic species, as noted in the Blackwater River Cork/Waterford SAC (00217) Conservation Objectives (see section 4.3). While no data on the usage of the river bank south of the Site is available, previous national and regional studies of Otter in the Blackwater (Munster) have determined that the Blackwater River and Catchment provides an important stronghold for Otter in the southwest, and indeed in Ireland, with evidence of this species presence recorded across the Blackwater River Catchment, from the estuarine area between Cappoquin and Youghal to the foothills of the mountain ranges (Smiddy, P., 2016, and Reid, N. et al, 2013).

4.2.2.2 Birds

A variety of bird species were recorded during the Site surveys. Table 4 below provides a list of the species encountered, as well as their conservation status per 'Birds of Conservation Concern in Ireland 2020-2026' (BoCCI, 2021).

TABLE 4. BIRD SPECIES RECORDED DURING SURVEYS IN FEBRUARY AND MAY 2023.

Species name	BoCCI Status	February 2023	March 2023
Barn Swallow (*Hirundo rustica*)	Amber		X
Blackbird (*Turdus merula*)	Green	X	X
Coal Tit (*Periparus ater*)	Green		X
Goldcrest (*Regulus regulus*)	Amber	X	
Great Tit (*Parus major*)	Green	X	
Hooded Crow (*Corvus cornix*)	Green	X	X
House Sparrow (*Passer domesticus*)	Amber		X
Magpie (*Pica pica*)	Green	X	
Mallard[1] (*Anas platyrhynchos*)	Amber	X	
Meadow Pipit (*Anthus pratensis*)	Red	X	
Robin (*Erithacus rubecula*)	Green	X	
Rook (*Corvus frugilegus*)	Green	X	X
Starling (*Sturnus vulgaris*)	Amber	X	X
Stonechat (*Saxicola rubicola*)	Green		X
Woodpigeon (*Columba palumbus*)	Green	X	X

Five of the above listed species are Amber-listed, while one species, namely the Meadow Pipit (*Anthus pratensis*) is a Red-listed species in Ireland. However, in general the majority of species observed are Green-listed species (BoCCI, 2021), most of which are of the garden bird variety and are found widespread throughout Ireland.

Please refer to the Biodiversity Chapter (Enviroguide, 2024) within the EIAR that accompanies this application under separate cover for the full details of methodologies and results relating to flora and fauna that are not of relevance to this AA Screening.

4.2.2.3 Aquatic Species

Historical records for Fresh Water Pearl Mussel (FWPM) were obtained from an information request issued to NPWS in 2023. The results confirmed that the Blackwater Munster is an important catchment area for this species (defined as being a catchment of SAC populations listed in S.I. 296 of 2009), with existing records for the presence of FWPM in the main channel of the Blackwater River, south of the Proposed Development Site, both upstream and downstream.

Targeted aquatic surveys were not carried out on the Blackwater River located 0.15km south of the Proposed Development, adjacent to the existing public parkland. As a result, on a precautionary basis, QI species of the Blackwater River SAC (002170) are presumed to be present in the stretch of the River Blackwater which occurs directly

[1] Mallard observed outside of the Site boundary on the Blackwater River

south of the Proposed Development Site. Further information on the Blackwater River SAC, including conservation objectives are presented in Section 4.3 below.

Site Conditions – Surface Water Sensitivities

The walkover survey on the 15th of July 2024 examined the existing Site with a view to identifying surface water sensitivities. On-Site conditions were assessed in their current state including topography, vegetation, presence or absence of drainage channels and possible surface water links to the nearby River Blackwater SAC (002170).

The Site visit also identified the most appropriate locations for placement of mitigation measures in relation to surface water management i.e. attenuation ponds/ lagoons, silt fencing and placement of wastes produced from proposed excavation works. Figure 8 below highlights the current characteristics of the Site, as identified during the walkover survey in July 2024.

FIGURE 8. CURRENT SITE CONDITION RELEVANT TO SURFACE WATER MITIGATION

4.3 Summary Of Relevant European Sites

The following descriptions of the relevant habitats and species occurring within the European site(s) considered in this NIS have been extracted from the Standard Data Forms (EEA, 2024), Site Synopses (NPWS, 2016) and any supporting documents available for the relevant site(s).

4.3.1 Blackwater River (Cork/Waterford) SAC (002170)

The following description of the Blackwater River (Cork/Waterford) site is extracted from the Site Synopsis (NPWS, 2016) for the site:

"The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. The portions of the Blackwater and its tributaries that fall within this SAC flow through the counties of Kerry, Cork, Limerick, Tipperary, and Waterford. Nearby towns include Rathmore, Millstreet, Kanturk, Banteer, Mallow, Buttevant, Doneraile, Castletownroche, Fermoy, Ballyduff, Rathcormac, Tallow, Lismore, Cappoquin and Youghal.

The Blackwater rises in boggy land in east Kerry, where Namurian grits and shales build the low heather-covered plateaux. Near Kanturk the plateaux enclose a basin of productive Coal Measures. On leaving the Namurian rocks the Blackwater turns eastwards along the northern slopes of the Boggeragh Mountains before entering the narrow limestone strike vale at Mallow.

Interesting geological features along this stretch of the Blackwater Valley include limestone cliffs and caves. Wet woodlands are found where river embankments have broken down and channel edges are subject to daily inundation. This is particularly evident in the steep-sided valley of the River Bride, between Cappoquin and Youghal. A small stand of Yew (Taxus baccata) woodland occurs on a limestone ridge at Dromana, near Villierstown. Marshes and reedbeds cover most of the flat areas beside the rivers and often occur in mosaic with the wet woodland. Floating river vegetation is found along much of the freshwater stretches within the site. The grasslands adjacent to the rivers of the site are generally heavily improved, although liable to flooding in many places. However, fields of more species-rich wet grassland with species occur at Annagh Bog on the Awbeg.

The Blackwater Valley has a number of dry woodlands; these have mostly been managed by the estates in which they occur, frequently with the introduction of Beech and a few conifers, and sometimes of the invasive species Rhododendron (Rhododendron ponticum) and Cherry Laurel (Prunus laurocerasus). The oak wood community in the Lismore and Glenmore valleys is of the classic upland type, in which some Rowan (Sorbus aucuparia) and Downy Birch occur. The Araglin valley consists predominantly of broadleaved woodland while along the lower reaches of the Awbeg River, the valley sides are generally cloaked with mixed deciduous woodland of estate origin.

This vast site supports several Red Data Book plant species and is also important for the presence of several E.U. Habitats Directive Annex II animal species, including Sea Lamprey (Petromyzon marinus), Brook Lamprey (Lampetra planeri), River Lamprey

(Lampetra fluviatilis), Twaite Shad (Alosa fallax fallax), Freshwater Pearl Mussel (Margaritifera margaritifera), Otter (Lutra lutra) and Salmon (Salmo salar).

The site supports many of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger, and Irish Hare. The bat species Natterer's Bat, Daubenton's Bat, Whiskered Bat, Brown Long-eared Bat and Pipistrelle, can be seen feeding along the river, roosting under the old bridges and in old buildings. Common Frog, a Red Data Book species that is also legally protected (Wildlife Act, 1976), occurs throughout the site.

In terms of birds, the site holds several bird species listed on Annex I of the E.U. Birds Directive, and the site also holds important numbers of wintering waterfowl. Other important species found within the site include Long-eared Owl, which occurs all along the Blackwater River, and Barn Owl, a Red Data Book species, which is found in some old buildings and in Castlehyde, west of Fermoy. Land use at the site is mainly centred on agricultural activities. Both commercial and leisure fishing takes place on the rivers.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, dredging of the upper reaches of the Awbeg, over-grazing within the woodland areas, and invasion by non-native species, for example Rhododendron and Cherry Laurel."

The following description of the Site is extracted from the Standard Data Form Quality and Importance Section for the Site:

"The site supports important examples of a range of Annex I habitats, notably estuaries, intertidal mudflats and sandflats, perennial vegetation of stony banks, salt meadows, floating river vegetation, alluvial forests, and oak woodlands. Most of these are of good quality and extensive in area. The Blackwater system is an important salmonid fishery and is of high conservation value for Salmo salar. Also supports important populations of Lampetra planeri, L. fluviatilis, Petromyzon marinus and Alosa fallax fallax. Substantial populations of Margaritifera margaritifera occur, while Austropotamobius pallipes is found in the Awbeg River. Lutra lutra is widespread throughout the site and has been subject to detailed surveys. Trichomanes speciosum occurs at one location. Annex I bird species present in the site include breeding Egretta garzetta, Alcedo atthis and Falco peregrinus and wintering cygnus cygnus and Pluvialis apricaria. A good diversity of other winter waterfowl species also occurs."

4.3.2 Qualifying Interests and Conservation Objectives

The QIs/SCIs and their respective conservation objectives for each of the relevant European site(s) are detailed in Table 5 below, while Appendix 1 provides the complete list of attributes and targets which define favourable conservation status for each QI.

TABLE 5. QUALIFYING INTERESTS (QIS) / SPECIAL CONSERVATION INTERESTS (SCIS) AND THEIR CONSERVATION OBJECTIVES FOR THE RELEVANT EUROPEAN SITES. THE DEGREE OF CONSERVATION FOR EACH QI / SCI WAS SOURCED FROM THE RELEVANT STANDARD DATA FORM(S) (SOURCE: EEA (2024)) AND THE LATEST NATIONAL STATUS IS TAKEN FROM THE LATEST ARTICLE 17 REPORT (NPWS, 2019A & 2019B) AND BOCCI[2] RESPECTIVELY.

QI / SCI (* = priority habitat)	Degree of Conservation[3]	National Status	Conservation Objective
Blackwater River SAC (002170) (NPWS 2012)			
1130 Estuaries	Good	Inadequate	To maintain the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC
1140 Mudflats and sandflats not covered by seawater at low tide	Good	Inadequate	
1220 Perennial vegetation of stony banks	Good	Inadequate	
1310 *Salicornia* and other annuals colonising mud and sand	Good	Favourable	
1330 Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	Good	Inadequate	To restore the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC
1410 Mediterranean salt meadows *(Juncetalia maritimi)*	Good	Inadequate	To maintain the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC

[2] Birds of Conservation Concern in Ireland (BOCCI) 2020-2026 (Gilbert, Stanbury & Lewis, 2021). The colours represent the species designation on the various BOCCI lists.

[3] Per the Standard Data Capture Forms this refers to the Degree of Conservation of the structure and functions of the natural habitat type concerned and restoration possibilities at the time of designation.

QI / SCI (* = priority habitat)	Degree of Conservation[3]	National Status	Conservation Objective
Blackwater River SAC (002170) (NPWS 2012)			
3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	Excellent	Inadequate	
91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	Average or reduced	Bad	To restore the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC
91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*	Excellent	Bad	
1029 Freshwater Pearl Mussel (*Margaritifera margaritifera*)	Average or reduced	Bad	To restore the favourable conservation condition of this SCI species in the Blackwater River (Cork/Waterford) SAC
1092 White-clawed Crayfish (*Austropotamobius pallipes*)	Average or reduced	Bad	To maintain the favourable conservation condition of this SCI species in the Blackwater River (Cork/Waterford) SAC
1095 Sea Lamprey (*Petromyzon marinus*)	Excellent	Bad	To restore the favourable conservation condition of this SCI species in the Blackwater River (Cork/Waterford) SAC
1096 Brook Lamprey (*Lampetra planeri*)	Excellent	Favourable	To maintain the favourable conservation condition of this SCI

QI / SCI (* = priority habitat)	Degree of Conservation[3]	National Status	Conservation Objective
Blackwater River SAC (002170) (NPWS 2012)			
1099 River Lamprey (*Lampetra fluviatilis*)	Good	Unknown	species in the Blackwater River (Cork/Waterford) SAC
1103 Twaite Shad (*Alosa fallax fallax*)	Good	Bad	
1106 Salmon (*Salmo salar*)	Good	Inadequate	
1355 Otter (*Lutra lutra)*	Excellent	Favourable	To restore the favourable conservation condition of this SCI species in the Blackwater River (Cork/Waterford) SAC
1421 Killarney Fern (*Trichomanes speciosum*)	Not available	Unknown	To maintain the favourable conservation condition of this SCI species in the Blackwater River (Cork/Waterford) SAC

4.4 Impact Prediction

This section follows the S-P-R method as outlined in section 3.5 to identify if and how any of the QIs/SCIs of the relevant European site are linked to the Proposed Development. Once the connections have been identified the potential impacts of the Proposed Development on the Blackwater River (Cork/Waterford) SAC (002170) in light of its QIs/SCIs are assessed.

For the purposes of objectivity and clarity, mitigation measures **are not considered in the impact prediction.** This includes all measures that will act limit or eliminate the potential for significant adverse impacts on the relevant European site.

4.4.1 Potential impacts of the Proposed Development on key Species and Habitats

The following elements of the Proposed Development were identified and assessed for their potential to cause likely significant effects on European sites.

Construction Phase (*Estimated duration: total 96 months*)

- Uncontrolled releases of dust, sediments and/or other pollutants to air due to earthworks;
- Surface water run-off containing silt, sediments and/or other pollutants overland into the nearby Blackwater River or surface water network;
- Surface water containing potential pollutants that discharge into the local groundwater (which may also reach surface water bodies that connect to European designated sites);
- Spread of Invasive Alien Plant Species (IAPS);
- Waste generation during the Construction Phase comprising soils and construction wastes;
- Increased noise, dust and/or vibrations as a result of construction activity;
- Increased lighting in the vicinity as a result of construction activity**,** and;
- Increased human presence and activity as a result of construction activity**.**

Operational Phase *(Estimated duration: Indefinite)*

- Hydraulic/organic overloading of Mallow WwTP leading to the release of untreated sewage into the Blackwater River and the associated European sites;
- Surface water drainage from the Site of the Proposed Development;
- Increased lighting at the Site and in the vicinity emitted from the Proposed Development;
- Changes in hydrological regime of the Munster Blackwater due to land use changes (e.g. conversion of areas of well-draining greenfield lands to hardstanding) and proposed site drainage, and;
- Increased human presence and activity at the Site and in the vicinity as a result of the Proposed Development.

The relevant QIs/SCIs for the relevant sites are described in Table 6. Descriptions are sourced from the relevant Conservation Objectives and supporting documents (NPWS 2012, NPWS 2016), Standard Data Forms (EEA, 2024) as well as the surveys carried out at the Site.

Additionally, Table 6 below outlines the identified pathways between the Proposed Development and the relevant QIs/SCIs and assesses the potential significant effects of the Proposed Development on these. The assessment outlined below does not consider mitigation measures that will be implemented as part of the Proposed Development, but the nature of mitigation that will be required to eliminate the potential for significant adverse impacts is identified in the table, if any.

TABLE 6. ASSESSMENT OF THE POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT ON THE QIS AND SCIS OF THE RELEVANT EUROPEAN SITES. THOSE QIS/SCIS FOR WHICH NOTABLE IMPACT PATHWAYS WERE IDENTIFIED HAVE BEEN HIGHLIGHTED IN GREEN.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
1130 Estuaries *Conservation objective:* To maintain the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			
This QI habitat is mapped from Lismore connecting hydrologically to Youghal Harbour, occurring at a significant remove from the Proposed Development Site	None – a weak hydrological connection exists between this QI habitat and the Proposed Development Site, however, it is considered insignificant due to the significant hydrological distance between these Sites and the buffering capacity of the waters contained therein.	None anticipated as no impact pathways capable of causing significant impact were identified.	None required.
1140 Mudflats and sandflats not covered by seawater at low tide *Conservation Objective:* To maintain the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			
This QI habitat is mapped as occurring within the estuary at Youghal Harbour, and occurring at a significant	None – a weak hydrological connection exists between this QI habitat and the	None anticipated as no impact pathways capable of causing significant impact were identified.	None required.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
remove from the Proposed Development Site	Proposed Development Site, however, it is considered insignificant due to the significant hydrological distance between these Sites and the buffering capacity of the waters contained therein.		
1220 Perennial vegetation of stony banks *Conservation Objective:* To maintain the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			
While this QI habitat is not mapped, this habitat type is typically found along the upper reaches of upper beaches with shingle banks. In addition, the site synopsis notes that the shingle spit at Ferrypoint supports a good example of perennial vegetation of stony banks. As a result, this QI habitat occurs at a significant remove from the Proposed Development Site.	None – a weak hydrological connection exists between this QI habitat and the Proposed Development Site, however, it is considered insignificant due to the significant hydrological distance between these Sites and the buffering	None anticipated as no impact pathways capable of causing significant impact were identified.	None required.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
	capacity of the waters contained therein.		
1310 *Salicornia* and other annuals colonising mud and sand *Conservation Objective:* To maintain the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			
This QI habitat is mapped as occurring within the estuary at Youghal Harbour and occurring at a significant remove from the Proposed Development Site.	None – a weak hydrological connection exists between this QI habitat and the Proposed Development Site, however, it is considered insignificant due to the significant hydrological distance between these Sites and the buffering capacity of the waters contained therein.	None anticipated as no impact pathways capable of causing significant impact were identified.	None required.
1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) *Conservation Objective:* To restore the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
This QI habitat is mapped as occurring within the estuary at Youghal Harbour and occurring at a significant remove from the Proposed Development Site (The area of saltmarsh within the site is small. The best examples occur at the mouths of the tributaries and in the townlands of Foxhole and Blackbog according to the site synopsis).	None – a weak hydrological connection exists between this QI habitat and the Proposed Development Site, however, it is considered insignificant due to the significant hydrological distance between these Sites and the buffering capacity of the waters contained therein.	None anticipated as no impact pathways capable of causing significant impact were identified.	None required.
1410 Mediterranean salt meadows (*Juncetalia maritimi*) *Conservation Objective:* To maintain the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			
This QI habitat is mapped as occurring within the estuary at Youghal Harbour and occurring at a significant remove from the Proposed Development Site (The area of saltmarsh within the site is small. The best examples occur at the mouths	None – a weak hydrological connection exists between this QI habitat and the Proposed Development Site; however, it is considered insignificant due to	None anticipated as no impact pathways capable of causing significant impact were identified.	None required.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
of the tributaries and in the townlands of Foxhole and Black bog according to the site synopsis).	the significant hydrological distance between these Sites and the buffering capacity of the waters contained therein.		
3260 Water courses of plain to montane levels with the *Ranunculion fluitantis and Callitricho-Batrachion* vegetation *Conservation Objective:* To maintain the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			
This QI habitat is not currently mapped in the conservation objectives document for this SAC. However, the site synopsis states that floating river vegetation is found along much of the freshwater stretches within the Site, but particularly on the Awbeg, upstream of the Site (near Buttevant town).	Yes - Hydrological connection exists.	While it is difficult to pinpoint the exact distribution of this QI habitat, the site synopsis only makes reference to its presence in the Awbeg river, which is located a significant hydrological distance upstream of the site, and constitutes a smaller stream order, which may be subject to drying/low water levels in dry periods, unlike the stretch of the Blackwater River that overlaps with this Site, a 5th order river. With that being said, floating river vegetation has been noted as being found along much of the freshwater stretches within the SAC (NPWS, 2016). The conservation attributes and targets for this habitat relate to water quality and the limiting of nutrients in the water column; the maintenance of the characteristic floral species composition typical of the habitat sub-type; and the maintenance of floodplain connectivity throughout the SAC.	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for the protection of this species are detailed below. Operational Phase Management and design measures to ensure no change in chemistry of overland surface

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
		It is deemed that the Proposed Development does not have the potential to adversely affect any of the above conservation attributes/targets; due to the nature and scale of the development. Nevertheless, the potential for reductions in water quality downstream of the Site will be addressed with appropriate mitigation measures.	water or groundwater from the Site into the nearby Blackwater River. While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been incorporated into the design of the proposed development.
91A0 Old sessile oak woods with *Ilex and Blechnum* in the British Isles *Conservation Objective:* To restore the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			
This terrestrial QI habitat is mapped both upstream and downstream of the Proposed Development Site,	None – while this QI habitat is mapped both upstream and downstream of the Site, it is mapped as occurring in the Blackwater River tributaries and so	None anticipated as no impact pathways capable of causing significant impact were identified.	None required.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
	does not occur directly downstream of the Site as these tributaries flow into the Blackwater River.		
91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) *Conservation Objective:* To restore the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			
This QI habitat is mapped in very small pockets along the Blackwater River and its tributaries.	Yes - Hydrological connection exists.	Wet woodlands are found where river embankments have broken down and channel edges are subject to daily inundation. This is particularly evident in the steep-sided valley of the River Bride, between Cappoquin and Youghal (NPWS, 2016). Overland surface water runoff from the Site could transfer pollutants from parked cars (e.g., fuel/oil spills) to these habitats in the event of heavy rainfall. However, it is considered that the volume of potential spills even in a worst-case scenario (i.e., full car fuel tank approx. 45-65L) is considered to be relatively small in relation to the dilution and dispersion potential of a heavy rainfall event. Nevertheless, the potential for reductions in water quality downstream of the Site will be addressed with appropriate mitigation measures.	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for the protection of this species are detailed below. Operational Phase Management and design measures to ensure no change in chemistry of overland surface water or groundwater from the Site into the nearby Blackwater River. Avoidance by Design

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
			While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been incorporated into the design of the proposed development.
91J0 Yew Woodland (*Taxus baccata*) *Conservation Objective:* To restore the favourable conservation condition of this QI habitat in the Blackwater River (Cork/Waterford) SAC			
This terrestrial QI habitat is mapped along various tributaries of the Blackwater River, with a small but prominent stand of Yew (*Taxus baccata*) woodland occurs within the Blackwater River. This is on a	None - These habitats were not recorded within, or within close proximity to the Site of the Proposed Development; and as such will not be	None anticipated as no impact pathways capable of causing significant impact were identified.	None required.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
limestone ridge at Dromana, near Villierstown	adversely affected by same.		
1029 Freshwater Pearl Mussel (*Margaritifera margaritifera*) *Conservation Objective:* To restore the favourable conservation condition of this QIspecies in the Blackwater River (Cork/Waterford) SAC			
This QIspecies has a mapped catchment area and distribution that encompasses the Blackwater River and many of its tributaries which occur at Mallow, Fermoy, and further upstream of the Proposed Development.	Yes – Hydrological and hydrogeological connection exists.	The Proposed Development Site slopes naturally to the south, draining freely, towards the Blackwater River (located directly south, entirely outside of the Proposed Development), with ground elevations ranging from 87.5 meters above Ordnance Datum (mOD) in the north of the Site to 43mOD to the south of the Site. As such, is an important site in the context of supporting the hydrological regime of the Blackwater River. It is known that in the naturally well drained areas of FWPM catchments, the fringing semi-natural and natural habitats both within and outside of the floodplain are critical to the regulation of flow regime and provide a buffering to sediment and nutrient loading to the river. Previously, the European Union Environmental Objectives (Freshwater Pearl Mussel) (Amendment) Regulations 2018 (S.I. No. 355 of 2018) was introduced based on scientific advice including the 'Strategy for Conservation of the Freshwater Pearl Mussel in Ireland' (NPWS, 2011), which found that it would be very unlikely that measures to restore the FWPM population in the entire Munster Blackwater River would be effective, and that	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for the protection of this species are detailed below. Operational Phase Management and design measures to ensure no change in chemistry of overland surface water or groundwater from the Site into the nearby Blackwater River.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
		a prioritised approach focusing on the river catchments with the most favourable conservation outlooks for FWPM would be more productive. S.I. No. 355 of 2018 thus allowed the amendment of the 2009 Regulations to omit the main Blackwater River Channel from the list of watercourses to which it applied to, and in doing so amended the NPWS conservation objectives for the Blackwater River (Cork/Waterford) SAC, removing the FWPM as a qualifying interest for the main river channel. FWPM was retained as a QI for the Allow and Licky tributaries to the Blackwater. However, this has since been overturned, reinstating the FWPM as a QI species for the main Blackwater River Channel. This QI species has a mapped catchment area and distribution that encompasses the Blackwater River and many of its tributaries which occur at Mallow, Fermoy, and further upstream of the Proposed Development Site. Construction and Operational Phase impacts identified in the previous section could have a significant effect on the attributes and targets listed in the Conservation Objectives document for this species, which possess an overall conservation objective of restoring the favourable conservation condition of this QI species in the Blackwater River (Cork/Waterford) SAC. In particular, water quality impacts could cause a significant impact on the population of FWPM within the Blackwater River, as water quality impacts could lead to habitat deterioration resulting in displacement and/or mortality of FWPM populations at a scale that could prevent the conservation objective being met (e.g., decline in population greater than 5%, changes in	Signage to encourage keeping pets on leads within the park and out of Blackwater River. <u>Avoidance by Design</u> While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been incorporated into the design of the proposed development.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
		hydrological regime, water quality, substratum quality or changes in population structure). As such, the potential for reductions in water quality within the Blackwater River south of the Site, including downstream stretches will be addressed with appropriate mitigation measures. In addition, populations of FWPM which occur upstream of the Proposed Development Site could be significantly affected if host fish were impacted by the project (during the Construction/Operational Phases) via the previously identified impact pathways. Accordingly, mitigation measures are required to address this. Dust and vibrations arising from Construction Phase activities also have the potential to affect FWPM. FWPM or their host fish may be sensitive to impacts arising from Construction Phase vibrations, while Construction Phase activities particularly associated with development of large sites can be a source of dust or other airborne contaminants which can impact on water quality if deposited or washed into waters as a result of rainfall events. In the case of roads, the transport of certain material can also lead to airborne dust and particulates. This can be especially significant if such a deposition is allowed to take place over long periods of time. As a result, mitigation measures must be put in place to prevent such events occurring.	

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
		Finally, potential introduction of pesticides such as tick and flea treatments from pets can cause harm to FWMP populations within the river even in small quantities.	
1092 White-clawed Crayfish (*Austropotamobius pallipes*) *Conservation Objective:* To maintain the favourable conservation condition of this QI species in the Blackwater River (Cork/Waterford) SAC			
White Clawed-Crayfish have been mapped as occurring along the Awbeg River, however recent records for this species further downstream also exist.	Yes – Hydrological connection exists.	White Clawed Crayfish (WCC) have been recorded mostly along one tributary of the Blackwater, the Awbeg, which joins the Blackwater River to the east of the Site of the Proposed Development. The section of the Awbeg that maintains the main WCC population in the SAC is located several km north of the Site; just upstream of the town of Buttevant. This watercourse passes through an area of Karstic limestone (Sweeney & Sweeney, 2017), thus matching the preferred water chemistry preferred by WCC (Reynolds, 1998). Although the main Blackwater River channel is considered largely chemically unsuitable for the crayfish (NPWS, 2012); due to a lack of underlying calcareous geology, surveys in 2015 recorded WCC at several locations along the main channel (Sweeney & Sweeney, 2017), the closest to the Site of the Proposed Development being at Longfield's Bridge ca.3km to the south-west and upstream of Mallow town. Sweeney & Sweeney (2017) report that no WCC were recorded at the three survey sites within the central section of the Blackwater River (i.e., Mallow Bridge, Ballymagooly Townland and Killavullen Bridge), and suggests that potentially a combination of biological water quality and lower pH could have affected crayfish distribution in this section.	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for the protection of this species are detailed below. Operational Phase Management and design measures to ensure no change in chemistry of overland surface water or groundwater from the Site into the nearby Blackwater River. Signage to encourage keeping pets on leads within the park and out of Blackwater River.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
		Gammel et al. (2021), however, in their study of WCC distributions across the 17 SACs in 2017, noted that all stretches of the Blackwater River for which there were recent crayfish records were of at least Moderate status, and that there was no indication that water quality was having a negative effect on crayfish populations. As WCC have recently been recorded within the main channel of the Blackwater River, albeit upstream of Mallow (at Site 8: Bridgetown Lower in Sweeney & Sweeney, 2017), potential adverse effects to this species are considered. The two conservation targets of relevance to the Proposed Development are discussed below: - The conservation objectives for the SAC that concern WCC state the conservation target of "No reduction from baseline" in terms of Distribution attribute (NPWS, 2012). It is not envisaged the Proposed Development has the potential to affect the baseline distribution of WCC in this SAC, as the nearest record for this species lies upstream of the Site, and no further populations are known to exist for ca.15km downstream. - The target for the conservation attribute of Water quality is "At least Q3-4 at all sites sampled by EPA". It is not envisaged that the Proposed Development has the potential to affect water quality within the SAC to this extent. Finally, potential introduction of pesticides such as tick and flea treatments from pets can cause harm even in small quantities to any potentially present WCC populations within the river. However, while it is deemed unlikely that the Proposed Development would lead to significant adverse effects on the	<u>Avoidance by Design</u> While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been incorporated into the design of the proposed development.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
		conservation attributes and targets for WCC, a suite of mitigation measures has been recommended to mitigate any construction and Operational Phase impacts to downstream water quality.	
1095 Sea Lamprey (*Petromyzon marinus*) *Conservation Objective:* To restore the favourable conservation condition of this QI species in the Blackwater River (Cork/Waterford) SAC			
This QI species has been recorded downstream of Mallow Town.	Yes – Hydrological connection exists.	Juveniles of all three lamprey species have been recorded downstream of Mallow, with Sea lamprey spawning grounds located along the Blackwater River downstream of Mallow town (NPWS, 2012, King & Linnane, 2004). The conservation targets for the three lamprey species relate to avoidance of instream barriers that restrict their movements; the extent and distribution of spawning habitat; the availability of juvenile habitats; and the number of age groups in, and density, of juvenile populations. Pets allowed to enter the Blackwater River may also cause direct disturbance to this species. It is deemed unlikely that the Proposed Development would lead to any significant reduction in lamprey distribution or spawning/juvenile habitats. Nevertheless, with the presence of spawning of Sea Lamprey in particular noted downstream of Mallow, a suite of mitigation measures has been recommended to mitigate any construction and Operational Phase impacts to downstream water quality.	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for the protection of this species are detailed below. Operational Phase Management and design measures to ensure no change in chemistry of overland surface water or groundwater from the Site into the nearby Blackwater River. Signage to encourage keeping pets on leads within the park and out of Blackwater River.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
			Avoidance by Design While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been incorporated into the design of the proposed development.
1096 Brook Lamprey (*Lampetra planeri*) *Conservation Objective:* To maintain the favourable conservation condition of this QI species in the Blackwater River (Cork/Waterford) SAC			
This QI species has been recorded downstream of Mallow Town.	Yes – Hydrological connection exists.	Juveniles of all three lamprey species have been recorded downstream of Mallow, with Sea lamprey spawning grounds located along the Blackwater River downstream of Mallow town (NPWS, 2012, King & Linnane, 2004). The conservation targets for the three lamprey species relate to avoidance of instream barriers that restrict their movements; the extent and distribution of spawning habitat; the availability of	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
		juvenile habitats; and the number of age groups in, and density, of juvenile populations. Pets allowed to enter the Blackwater River may also cause direct disturbance to this species. It is deemed unlikely that the Proposed Development would lead to any significant reduction in lamprey distribution or spawning/juvenile habitats. Nevertheless, with the presence of spawning of Sea Lamprey in particular noted downstream of Mallow, a suite of mitigation measures has been recommended to mitigate any construction and Operational Phase impacts to downstream water quality.	the protection of this species are detailed below. <u>Operational Phase</u> Management and design measures to ensure no change in chemistry of overland surface water or groundwater from the Site into the nearby Blackwater River. Signage to encourage keeping pets on leads within the park and out of Blackwater River. <u>Avoidance by Design</u> While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
			incorporated into the design of the proposed development.
1099 River Lamprey (*Lampetra fluviatilis*) *Conservation Objective:* To maintain the favourable conservation condition of this QI species in the Blackwater River (Cork/Waterford) SAC			
This QI species has been recorded downstream of Mallow Town.	Yes – Hydrological connection exists.	Juveniles of all three lamprey species have been recorded downstream of Mallow, with Sea lamprey spawning grounds located along the Blackwater River downstream of Mallow town (NPWS, 2012, King & Linnane, 2004). The conservation targets for the three lamprey species relate to avoidance of instream barriers that restrict their movements; the extent and distribution of spawning habitat; the availability of juvenile habitats; and the number of age groups in, and density, of juvenile populations. Pets allowed to enter the Blackwater River may also cause direct disturbance to this species. It is deemed unlikely that the Proposed Development would lead to any significant reduction in lamprey distribution or spawning/juvenile habitats. Nevertheless, with the presence of spawning of Sea Lamprey in particular noted downstream of Mallow, a suite of mitigation measures has been recommended to mitigate any construction and Operational Phase impacts to downstream water quality.	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for the protection of this species are detailed below. Operational Phase Management and design measures to ensure no change in chemistry of overland surface water or groundwater from the Site into the nearby Blackwater River. Signage to encourage keeping pets on leads within the park and out of Blackwater River.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
			Avoidance by Design While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been incorporated into the design of the proposed development.
1103 Twaite Shad (*Alosa fallax fallax*) *Conservation Objective:* To maintain the favourable conservation condition of this QI species in the Blackwater River (Cork/Waterford) SAC			
This QI species is largely confined to the estuary of the Blackwater River.	Yes – Hydrological Connection exists.	While largely constrained to the estuary of the Blackwater River. King and Linnane (2004) reported a fish caught at Fermoy; notably 25 km upstream of the head of the tide at Cappoquin. The limited nature of records of adult fish along the Blackwater was noted by Rooney et al. (2014), and focused netting surveys employed by Inland Fisheries Ireland (IFI) in 2013 recorded no fish from the River during a 2013 survey effort. Acoustic tracking of tagged fish showed usage of a location between Lissmore and Cappoquin as a spawning ground (Rooney et al. 2014).	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for the protection of this species are detailed below.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
		Pets allowed to enter the Blackwater River may also cause direct disturbance to this species. It is deemed unlikely that the Proposed Development would lead to any significant effects with regards the conservation attributes and targets for Twaite Shad. Nevertheless, a suite of mitigation measures has been recommended to mitigate any construction and Operational Phase impacts to downstream water quality.	<u>Operational Phase</u> Management and design measures to ensure no change in chemistry of overland surface water or groundwater from the Site into the nearby Blackwater River. Signage to encourage keeping pets on leads within the park and out of Blackwater River. <u>Avoidance by Design</u> While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been incorporated into the design of the proposed development.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
1106 Salmon (*Salmo salar*) *Conservation Objective:* To maintain the favourable conservation condition of this QI species in the Blackwater River (Cork/Waterford) SAC			
This QI species is mapped as largely occurring along the main channel of the Blackwater River	Yes – Hydrological connection exists.	The main channel of the River Blackwater is a designated Salmonid Water under the European Communities (Quality of Salmonid Waters) Regulations of 1988 (S.I. No. 293 of 1988) and some of its tributaries are important for salmon spawning and nursery (NPWS, 2016). The conservation attributes relevant to the Proposed Development relate to spawning fish and their habitats, as well as water quality. The conservation target for water quality is the achievement of Q-values of 4 at EPA monitoring locations. Pets allowed to enter the Blackwater River may also cause direct disturbance to this species. A suite of mitigation measures has been recommended to mitigate any construction and Operational Phase impacts to downstream water quality, including sedimentation of spawning gravels	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for the protection of this species are detailed below. Operational Phase Management and design measures to ensure no change in chemistry of overland surface water or groundwater from the Site into the nearby Blackwater River. Signage to encourage keeping pets on leads within the park and out of Blackwater River. Avoidance by Design

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
			While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been incorporated into the design of the proposed development.
1355 Otter (*Lutra lutra*) *Conservation Objective:* To restore the favourable conservation condition of this QI species in the Blackwater River (Cork/Waterford) SAC			
This QI species is mapped as occurring along much of the Blackwater River and its tributaries	Yes – hydrological and/or disturbance from Construction Works	Based on his study of the otter distribution along the Blackwater, Smiddy (2016) concluded that the Munster River Blackwater remains an important habitat for the otter in southern Ireland, with evidence of presence throughout the entire catchment ranging from the sea to small feeder streams in the uplands and including all the major tributaries. Potential introduction of pesticides such as tick and flea treatments from pets can cause harm and disturbance to prey species of otter, and thus impact on the conservation objectives	Construction Phase Best practice measures for the protection of watercourses from hydrological, hydrogeological and air/land pathways will be applied during the Construction Phase and specific mitigation measures for the protection of this species are detailed below.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
		of this QI species. Pets may also directly disturb any otters present in the vicinity of the Site. The stretch of the Blackwater River that occurs south of the Site does have the potential to support Otter, and, as such, a suite of mitigation measures have been recommended to mitigate any construction and Operational Phase impacts to downstream water quality.	<u>Operational Phase</u> Management and design measures to ensure no change in chemistry of overland surface water or groundwater from the Site into the nearby Blackwater River. Signage to encourage keeping pets on leads within the park and out of Blackwater River. <u>Avoidance by Design</u> While the below do not constitute mitigation measure, included within this are avoidance measures embedded in the project design which will serve to protect water quality of the Blackwater River, ensuring no impacts to hydrological regime occur (this includes the on-site waste-water treatment plant to be constructed as part of the proposed development and all SuDS measures that have been incorporated into the design of the proposed development.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Blackwater River (Cork/Waterford) SAC (002170)			
1421 Killarney Fern (*Trichomanes speciosum*) *Conservation Objective:* To maintain the favourable conservation condition of this QI species in the Blackwater River (Cork/Waterford) SAC			
This QI species is mapped as occurring along the lower reach of the Blackwater River SAC.	With known records located at considerable distances downstream of the Proposed Development, and no evidence of its presence within the Site; it is not considered that this QI species will be at risk of any significant effects arising from the Proposed Development (NPWS, 2012; NBDC, 2022).	None anticipated as no impact pathways capable of causing significant impact were identified.	None required.

In summation, as per the Blackwater River (Cork/Waterford) SAC (002170) Conservation Objectives, and Table 6 above, the following QIs occur within the Section of the Blackwater River that overlaps with the Proposed Development Site, or occur downstream of the Proposed Development Site, with the potential to be impacted by the Development are:

- 91E0 Residual Alluvial Forests (and semi-natural woodland)
- 1029 Freshwater Pearl Mussel (*Margaritifera margaritifera*)
- 1096 Brook Lamprey (*Lampetra planeri*)
- 1095 Sea Lamprey (*Petromyzon marinus*)
- 1099 River Lamprey (*Lampetra fluviatilis*)
- 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis and Callitricho-Batrachion* vegetation
- 1092 White-clawed Crayfish (*Austropotamobius pallipes*)
- 1103 Twaite Shad (*Alosa fallax fallax*)
- 1106 Salmon (*Salmo salar*)
- 1355 Otter (*Lutra lutra*)

Please refer to maps no.1, no.7, no.8, and no.10 (Appendix 3) extracted from the publicly available Conservation Objectives document (NPWS, 2012) to see the full mapped range for these QI features within the Blackwater River (Cork/Waterford) SAC, which has been described in Table 6 above.

4.4.2 Potential for In-combination Effects

4.4.2.1 Existing Planning Permissions

As standard practice, a search of planning applications located within the town of Mallow of for which the Site of the Proposed Development is located was conducted using online planning resources such as the National Planning Application Database (NPAD) (MyPlan.ie) and Cork County Council Planning Applications online map. Any planning applications listed as granted or decision pending from within the last five years were assessed for their potential to act in-combination with the Proposed Development and cause likely significant effects on the relevant European sites. Long-term developments granted outside of this time period were also considered where applicable.

It is noted that the majority of the few developments within the vicinity of the Site of the Proposed Development are applications granted for small scale extensions and alterations to existing permitted developments. The larger developments in the vicinity of the Proposed Development are outlined in Table 7 below.

TABLE 7. GRANTED AND PENDING DEVELOPMENT APPLICATIONS WITHIN MALLOW TOWN, WHERE THE PROPOSED DEVELOPMENT IS LCOATED. THE LOCATION AND DISTANCE GIVEN IS RELATIVE TO THE PROPOSED DEVELOPMENT.

Planning Reference	Planning Authority	Status	Location
226156	**Cork County Council**	**Application Finalised**	**Scoil Aonghusa CNS, Kingfort Avenue, Castlepark Village, Castlelands, Mallow, Co.Cork**
Development Description Permission for construction of a single storey extension to existing school (Scoil Aonghusa CNS) incorporating a special educational needs base and associated facilities, alterations to northeast and northwest elevations of existing school and all associated site works including the construction of a soft fall play area and retaining wall with fencing. **Potential for In-combination effects** The Proposal encompasses an attenuation tank which addressed concerns raised by Cork CoCo in an FI dated 17/11/2022 that the drainage from the proposal could impact on the Blackwater SAC. Once this FI was submitted, the development was granted, as effects on this SAC, either alone or in-combination, were not envisaged.			
224676	**Cork County Council**	**Pending appeal decision with ABP**	**Old Course, Spaglen, Mallow, Co.Cork**
Development Description The construction of a residential development of 96 no. dwelling units and all associated site development works. The proposed development consists of the construction of 24 no. 4-bed semi-detached houses, 30 no. 3-bed semi-detached houses, 16 no. 3-bed townhouses, 14 no. 2-bedtownhouses and 6 no. 2-bed duplex units, 4 no. 2-bed apartment units and 2 no. 1-bed apartments units contained in 3 no. 3 storey apartment blocks. Vehicular access to the proposed development will be via the existing entrance from the L-1207. The proposed development also includes open space, landscaping, bicycle parking facilities, bin stores, public lighting, and all ancillary site development works. A Natura Impact Statement (NIS) has been prepared and will be submitted to the planning authority with the application. The NIS will be available for inspection or purchase at a fee not exceeding the reasonable cost of making a copy during office hours at the offices of the planning authority. **Potential for In-combination effects** The NIS Report States: “with the implementation of the mitigation measures proposed, that the construction, operation and decommissioning of the proposed development will not adversely affect the integrity of any European Site” alone or in combination. In addition, A Letter from the Local Authority			

Planning Reference	Planning Authority	Status	Location
issued to ABP regarding the appeal on 13/01/2023 states: "*The Planning Authority is of the opinion that all the relevant issues have been covered in the technical reports already forwarded to the Bord as part of the appeal documentation and has no further comment to make in this matter".* The main potential for in-combination impacts on the Blackwater River SAC, however the NIS and CEMP for the Proposed Development at Castlelands, Mallow outline mitigation measures, including embedded design features (e.g., SuDS and landscaping) that serve to ensure the Proposal will not act in-combination to create any adverse effects on the local ecology of the Site, adjacent/linked habitats, including the Blackwater River SAC. As such, in-combination effects are not foreseen.			
235197	**Cork County Council**	**Pending Decision**	**"Clonmore", Ballyviniter Lower, Mallow, Co.Cork**
Development Description Application for 1) The construction of 108 no. dwelling houses, consisting of 3 no. 4 bed detached, 2 no. 3 bed detached, 68 no. 4 bed semi-detached, 32 no. 3 bed semi-detached and 3no. 3 bed terraced houses. These houses area to be assessed through the existing completed part of the housing development; 2) A crèche of 380 sqm of single/two storey construction, also accessed from the existing completed part of the housing development, including 11 carparking spaces and associated works; 3) the provision of a 1.2m diameter culvert within this development. This leads to an open water course which is to be provided in lieu of the existing pipe works along the western boundary of the site; 4) all associated site development works. Extension of Duration to Permission granted under Planning Ref. No. 16/6949, ABP-301221-18. **Potential for in-combination effects** The original application was granted with no potential impact expected to occur on designated sites, alone or in-combination. However, this extension sought to make changes to the proposal and so was refused on the basis that it was invalid. However, the original application was then submitted, with the extension of duration being granted on the 09/08/2023 until the 31/03/2024. The Ecology Primary Report dated 03/08/2023 states: "*I note the application is for the completion of a permitted development, under reg ref 16/6949, of 108 dwelling houses. I also note that a Natura Impact Statement was submitted with the 2016 application and considered to be acceptable. As no changes, which may give rise to ecological impacts, have been made from the original application, I have no objection to the proposed Extension of Duration.".* As such, in-combination effects are not foreseen.			
226225	**Cork County Council**	**Permission Granted**	**Ballydaheen Road/ Mill Street, Ballydahin, Mallow, Co. Cork**
Development Description The construction of 52 no. residential units comprising of 12 no. 3 bed units, 18 no. 2 bed units and 22 no. 1 bed units [a mix of 3 bed townhouses, 1 & 2 bed maisonettes and 1, 2 & 3 bed own-door apartments]. The units range in height from 2 to 3 storeys. Permission is also sought for the construction of 3 no. commercial units [Beauty Salon/Coffee Shop/Café and Newsagents] as well as a multi-purpose/ community space at ground floor level. The development also includes landscaping, drainage, boundary treatments, 96 no. bicycle parking spaces, 57 no. car parking spaces, bin storage, play area, planting/screening and all associated site development works at Ballydaheen Road/ Mill Street, Ballydahin, Mallow, Co. Cork. A Natura impact statement will be submitted to the planning authority with this application. The Natura impact statement will be available for inspection or purchase at a fee not exceeding the reasonable cost of making a copy during office hours at the office of the relevant planning authority. **Potential for In-combination Effects** No in-combination impacts were identified in the NIS report for this granted application. Further information was requested regarding the overall landscape proposal at the site, which was subsequently provided and accepted with planning permission being granted. As such, in-combination effects are not foreseen.			

Planning Reference	Planning Authority	Status	Location
312640 (ABP-312640-22)	**An Bord Pleanala**	**Permission Granted**	**Anabella, Mallow, Co. Cork.**
Development Description Permission application for the construction of 299 no. residential units (185 no. houses, 114 no. apartments) creche and associated site works **Potential for In-combination Effects** The inspectors report makes reference to the AA Screening and NIS reports which were prepared in support of this application, stating: *"I note the applicant submitted a Natura Impact Statement (NIS). In deciding to prepare and submit a NIS the applicant states that the precautionary principle was being applied. I am of the opinion that the application of the precautionary principle in this instance represents an over-abundance of precaution and is unwarranted. Having regard to the above assessment, I recommend that Section 9(4)(a) of the Act of 2016 be applied, and that permission is granted for the reasons and considerations and subject to the conditions set out below".* As such, in-combination effects are not foreseen.			
244243; ABP-320525-24	**An Bord Pleanala**	**Decision due 02/12/2024**	**Spa Glen, Mallow, Co. Cork**
Development Description Permission for following Large Scale Residential Development (LRD) comprising the demolition of the existing farmhouse/buildings and the construction of 186 no. residential units, 1 no creche and all associated ancillary development works including the signalisation of the N72/L5331 junction to provide improved sightline visibility, amendments to part of the existing hedgerow along the N72 to improve sightline visibility, 2 no. vehicular access points, 1 no. toucan and 3 no. uncontrolled pedestrian and cycle crossing points on the L5331, footpaths, parking, drainage, landscaping/amenity areas and the undergrounding of existing 38KV overhead electricity lines. A Natura Impact Statement is submitted to the planning authority with this application. **Potential for In-combination Effects** No in-combination impacts were identified in the NIS submitted for this development. The main potential for in-combination impacts on the Blackwater River SAC, however the NIS and CEMP for the Proposed Development at Castlelands, Mallow outline mitigation measures, including embedded design features (e.g., SuDS and landscaping) that serve to ensure the Proposal will not act in-combination to create any adverse effects on the local ecology of the Site, adjacent/linked habitats, including the Blackwater River SAC. As such, in-combination effects are not foreseen.			
235952; Original application: ABP 301429-18, amended by ABP 311986-21.	**An Bord Pleanala**	**Granted 17th January 2024.**	**Hazel Brooke, Spa Glen (townland), Mallow, Cork**
Development Description Extension of Duration application for the construction of a strategic housing development comprising of 148 no. residential units, a creche, the provision of landscaping and amenity area to include 3 no. local play areas and 3 no. neighbourhood play areas and all associated ancillary development to include the provision of improved pedestrian facilities including the installation of dropped kerbs and tactile paving, new pedestrian crossings and the realignment and improvement of the spa road junction and footpaths to the west, lighting, drainage, boundary treatments and bicycle & carparking and bin storage. Extension of Duration to Permission granted under Planning Ref. No. ABP Ref 301429-18 (as amended by ABP 311986-21) **Potential for In-combination Effects** An AA screening was conducted and submitted with the conclusion of no likely significant effects. The planning authority requested further information which was submitted and reviewed, and provided evidence required to satisfy that no significant adverse effects are likely to occur in relation to any Natura 2000 site arising from an extension of the permitted development. Thus, in-combination effects are not foreseen.			

Planning Reference	Planning Authority	Status	Location
245530	**Cork County council**	**Submitted 13/08/2024, Awaiting FI**	**Annabella, Mallow, Co. Cork**
Project Description Permission for the construction of a creche facility to serve the adjacent permitted residential development (Cork County Council Ref. 15/6119 (extended under Ref. No. 20/6130) and all associated ancillary site development works including vehicular access, parking, footpaths, landscaping and amenity areas at Annabella (townland), Mallow, Co. Cork. The proposed creche will replace the creche previously permitted under Cork County Council Ref. 16/6023 (extended under ref. 22/6434). **Potential for In-combination Effects** An AA screening was conducted and submitted which concluded that the development is highly unlikely to have significant environmental impacts on any Natura 2000 sites and stage II appropriate assessment is not required. Thus, no in-combination effects are foreseen.			

4.4.2.2 EPA Licenced/Registered Facilities

In this instance, the zone of influence (ZOI) refers to the Blackwater River channel itself, whereby, licences/registered facilities along this channel or with the potential to impact on this ecological feature, could provide in-combination impacts with the Proposed Development.

A review of planning alerts mapping tool[4] determined that there are no active wind farm planning applications at present within the ZOI of the Proposed Development.

A review of the EPA mapping tool determined that there are several IPPC, IPC or IEL facilities within the zone of influence of the subject Site (EPA, 2024).

The nearest IEL-licenced facility is Dairygold Co-Operative Society Limited (Mallow) (Active licence no. P0403-03) which is located 1.15km northeast of the Proposed Development.

There is an active commercial quarry located 2.3km northeast of the Proposed Development; Mallow Quarry, Lacknamina, Mallow, Co. Cork (Quarry no. C020). This quarry extracts and processes asphalt macadam, RMC, general fill, and agricultural lime to produce ready mix/bulk, blocks, asphalt/macadam plant, agricultural lime, and mortars (GSI, 2024).

A review of Cork County Council Online Planner determined that there are no current planning applications pertaining to either of the facilities/quarries listed above (Cork County Council, 2024). It is considered that there is no potential for the Proposed Development to act in-combination with the above-listed EPA licenced/registered facilities in the vicinity, or those located further upstream and downstream of the Site, that may cause likely significant effects on the above European sites, based on the following:

- The spatial separation of the Proposed Development to the above listed EPA registered facilities; and,
- Accounting for the requirement for each of these facilities to produce suitable risk assessments and/or mitigations on the potential for operations to produce adverse

[4] https://www.planningalerts.ie/industries/wind-farm-windfarm-turbine-planning-applications

impacts on European sites, alone or in-combination, prior to EPA/ABP/the relevant authority approval.

4.4.2.3 Mallow WWwTP Upgrade Works

The Mallow WwTP was identified by the EPA as being non-compliant with the Emission Limit Values (ELVs) as set out in the Wastewater Discharge Licence for 2021, according to the 2021 Annual Environmental Report (AER) for the facility (Irish Water, 2021). It is also noted that Total Ammonia was the only parameter of all ELVs that this treatment plant was non-compliant for. However, ambient monitoring of the Blackwater River from upstream (Monitoring station: RS18B021690) and downstream (Monitoring station: RS18B021720) of the WwTP discharge point shows a deterioration in Biochemical Oxygen Demand (BOD) downstream of the effluent discharge point.

The upgrade works to Mallow WwTP which involved works to upgrade its waste management and processing infrastructure, were completed in July 2023. The following is noted on Irish Water's website (Irishwater.ie) with regard to said improvement works:

"Uisce Éireann first began work on the original WwTP, which was outdated and overloaded, with Glan Agua back in early 2021. The project also involved the construction of a new pumping station and stormwater holding tank at Mallow Bridge. A separate contract to upgrade the wastewater network was signed with Ward & Burke Construction Ltd in early 2021. Work commenced in April 2021 and was completed in January 2023. The overall investment of €34m in these two projects will provide the additional capacity in the wastewater network and at the wastewater treatment plant to cater for current and future development and housing in the Mallow area and will also improve water quality in the River Blackwater through the provision of an enhanced wastewater treatment plant and the removal of eight combined storm overflows".

Note also that in the subsequent AER (Irish Water, 2022), the Mallow WwTP was assessed as compliant for its ELVs, including those relating to ammonia.

The Proposed Development is expected to take 96 months to complete, and as such, it will become operational well after the completion of the upgrade to Mallow WwTP. The upgraded WwTP therefore has capacity to treat all foul flows generated by the Proposed Development and ensure water quality in the main Blackwater Channel is of sufficient quality to meet the relevant standards.

It is not expected that foul waters generated by the Proposed Development will present any source of significant impacts to the Blackwater River SAC post treatment and discharge from Mallow WwTP, as the Proposed Development will not prevent the Mallow WwTP from achieving compliance with its ELVs. It is noted that recent EPA water monitoring data reports Q-values of 4 (Good status) from upstream of the WWTP in 2021 (Station code: RS18B021500), and Q -values of 4 from ca. 4.6km downstream of its discharge point in 2020 (Station code: RS18B021800) (EPA, 2024).

As a result, significant water quality impacts owing to foul waters generated by the Proposed Development, and significant effects on the conservation objectives of the Blackwater River (Cork/Waterford) SAC can be ruled out.

As such, in-combination effects arising from same on the Blackwater River SAC are not foreseen.

4.4.2.4 Relevant Policies and Plans

The following policies and plans were reviewed and considered for possible in-combination effects with the Proposed Development.

- Cork County Development Plan (2022-2028).
- Cork County Heritage and Biodiversity Action Plan (2021-2026).
- Kanturk Mallow Municipal District Local Area Plan 2017.
- All Ireland Pollinator Plan (2021-2025).

Each of these plans has undergone AA, and where potential for likely significant effects has been identified (e.g., in the case of the Cork County Development Plan), an NIS has been prepared which identifies appropriate mitigation. As such, it is considered that the plans and policies listed will not result in in-combination effects with the Proposed Development.

The Cork County Development Plan 2022-2028 has directly addressed the protection of European sites through specific Objectives and policies (MW-GO-02, MW-GO-03, MW-GO-13). The Cork County Heritage and Biodiversity Action Plan (2021-2026) and the All-Ireland Pollinator plan are set out to protect and improve biodiversity and as such will not result in negative in-combination effects with the Proposed Development.

Lastly, the Mallow WwTP upgrade works which were completed in early 2023, long before this Proposed Development will be completed (in 96 months), are considered to provide a positive impact on the treatment of foul waters received in the Mallow Town area. As per licencing application for this WwTP, an NIS was produced which considered the conservation objectives of the QI species and habitats for which the Blackwater River SAC is designated.

On examination of the above, it is considered that there are no means for the Proposed Development to act in-combination with any policies or plans that would cause any likely significant effects on any European sites.

4.5 Avoidance and Mitigation Measures

The above sections outlined a range of potential impacts of the Proposed Development in the absence of mitigation measures on Blackwater River (Cork/Waterford) SAC. Potential impacts arising from both the Construction and Operational Phases include:

- Water quality impacts on designated sites arising from a potential pollution event, surface water run-off and potential groundwater flows containing silt, sediments, and other harmful pollutants, during the Construction Phase, which could impact on the hydrological regime of the Blackwater River and subsequently, on the conservation objectives of the Blackwater River SAC and the targets/attributes of the QIs for which it is designated;
- Water quality impacts on the Blackwater River SAC owing to a potential pollution event/as a result of hydraulic or organic overloading of Mallow WwTP leading to the release of untreated sewage into the Blackwater River and the associated European sites (including downstream sites);
- Spread of invasive flora species during the Construction Phase, and;
- Back flows through surface water outfalls during extreme flood events, leading to a build-up of surface water run off on the Site.

In addition, various Ecological, Environmental and Engineering Reports have been prepared by DOSA Consulting Engineers in support of the application for this Proposed Large-scale Residential Development which provides further information on the management plans proposed during both the Construction and Operational Phases. Information provided by the client and obtained from these reports have been referenced throughout this document and include the following:

- Construction and Environmental Management Plan (CEMP) Report (Enviroguide, 2024a)
- Infrastructure Report (DOSA, 2024a)
- Surface Water Management Plan (DOSA, 2024b)

In addition to the below the mitigation measures outlined in this section, measures to ameliorate noise, dust, vibrations, and other environmental nuisances (e.g., disposal of wastes arising from the Development) associated with the Construction Phase have been provided in detail in the CEMP, provided under separate cover, which should be read in conjunction with this Report.

As the CEMP is a live document, the final Construction Stage CEMP will be prepared by the Contractor and submitted to Cork County Council for approval prior to any works commencing on Site. The Contractors CEMP will include all of the mitigation measures detailed in this NIS and the Biodiversity Chapter (of the EIAR) (Enviroguide, 2024c) to ensure that no significant impacts to downstream EU sites or ecological receptors occur.

4.5.1 Avoidance by Design

Included in this section are avoidance measures that are embedded into the project design which will further serve to protect water quality of the Blackwater River (and any downstream designated sites), ensuring no impacts to the hydrological regime of the Blackwater River occur.

Avoidance measures integrated into the project design includes all SuDS measures that have been incorporated into the design of the Proposed Development.

4.5.1.1 Infrastructure Report

An Infrastructure Report[5] (IR) has been prepared by DOSA Consulting Engineers (2024a) in relation to this Proposed Development. The relevant sections from the IR are reproduced below to provide comprehensive information for the evaluation of the potential impacts of the Proposed Development. This includes the following attenuation and Sustainable Drainage Systems (SuDS) measures:

- Permeable Pavements
- Greenroofs
- Rainwater Harvesting
- Tree Pits
- Attenuation Tanks
- Flow Control Device
- Petrol Interceptor
- Swales
- Management Train

These SuDS elements have the capacity to retain and filter pollutants and assist with suspended solids removal prior to discharge in addition to providing attenuation on the surface and within filter materials. Due to the Site layout and topography, not all paved areas could be directed to bioretention areas/swales, but they have been included wherever practicable adjacent to roads and hard-standing areas along the southern section of the Site, receiving water from the adjoining lands and footpaths. The swales will allow for an element of infiltration but ultimately will have a connection to the attenuation system.

It is proposed to provide a hydrobrake or similar approved, at the outfall of the surface water catchment to restrict the flow of water from the subject site, as well as providing a petrol interceptor upstream of the attenuation tanks to ensure that any remaining hydro-carbons or pollutants within the runoff from trafficked areas are treated prior to outfall at the existing watercourse. These devices will remove hydrocarbons and fine sediment particles from the site runoff and lower the risk of downstream contamination following an oil spillage on site.

4.5.2 Pre-Construction Phase Mitigations

The following applies to all stages of the Pre-Construction Phase for the Proposed Development unless specific measures have been identified. As it has been identified that the Proposed Development could potentially affect QI species associated with the Blackwater River SAC during the Construction Phase as a result of the previously identified potential impacts (hydrological, hydrogeological and land/air pathways), the mitigation measures listed in the

[5] Document Reference: 6732_2023.01.24_SOG_Infrastructure Report_Rev_1.

following sections will be undertaken. This section lists mitigation measures which must be applied in advance of the commencement of any Construction Phase works on Site. In most cases, the pre-commencement mitigation measures listed below are measures which set out to establish ongoing management at the Site for the duration of the pre-construction, construction, and post construction (monitoring) phases until all works are completed. Deemed necessary due to the proximity of the Site to the Blackwater River SAC, the potential impact pathways to same, and accounting for the sensitive nature of the QIs for which this SAC is designated.

4.5.2.1 Mitigation 1: Ecological Clerk of Works (ECoW)

Prior to the commencement of the Construction Phase, the Site Ecologist will be on Site to ensure that the silt fences and bunding are correctly positioned in the correct locations and are effectively managed to ensure any run-off from these areas is intercepted.

In addition, the ECOW will prepare a Schedule of Work Operation Record (SOWOR) for the Development, in consultation with the Employers Representative and Contractor (see section 4.5.2.3 for further details).

4.5.2.2 Mitigation 2: Preparation of a Water Management System

All water protection measures will be incorporated into a detailed Water Management System (WMS) which will be prepared by the contractor.

The WMS will be drawn up in consultation with the ECoW and Employers Representative and will take into account any changes in the physical conditions of the Site e.g. river flows or ground conditions, which may have occurred subsequent to the submission of the application.

4.5.2.3 Mitigation 3: Develop a Schedule of Works Operations Record (SOWOR)

The construction of the Proposed Development will be managed through the SOWOR system. The SOWOR for the Development will be run by the ECoW, who is, or will be, trained to implement the process.

The Construction Management Team with their Environmental Manager will provide the numbered Method Statements for the SOWOR.

Together with the ECoW, environmental triggers for safe undertaking of the high, intermediate and low risk activities associated with the construction of the Development will be agreed between the contractor, employer's representative along with any other experts or technical specialists needed for high risk aspects of the project. An experienced ECoW can assist with determining these values, but the responsibility rests with the developer / employer.

The SOWOR will specify commencement and abandonment triggers for the following parameters for key works activities (which will be monitored for the duration of the works):

- Rainfall levels;
- Water levels;
- Weather forecast;
- Weather conditions on the ground;
- Soil conditions on the ground (such as soil wetness, whereby a check that the soils in the works area are not so saturated that they could result in slippage, soil movement, or overland flow of contaminated water);
- Flow in the Blackwater River;
- Turbidity in the Blackwater River, upstream and downstream of the works area;

- Hydrocarbon sheen on the Blackwater River, upstream and downstream of the works area, and;
- Integrity of mitigation measures.

The ECoW will have the power to stop any works where the SOWOR established a risk of failure to properly implement the planning conditions and mitigation measures included in the CEMP. Further information on the structure of the SOWOR system are provided in the CEMP that accompanies the application under separate cover.

4.5.2.4 Mitigation 4: Pre-Construction Otter Surveys

The following mitigation measures are recommended for Otter in line with the following best practice guidance document 'Guidelines for Treatment of Otters Prior to the Construction of National Road Schemes' (TII, 2008):

- A pre-construction survey for Otter should be carried out by a suitably qualified ecologist prior to the commencement of any works to search for signs of otter activity in the vicinity of the works, in particular any breeding and/or resting sites which may be present along the Blackwater River, to the south of the Proposed Development Site. Otter breeding may take place at any season of the year, so breeding activity at holts will need to be determined on a case-by-case basis.
- Where potential holts are identified, a period of monitoring over several days (e.g., five or more days of checking activity at the holt either with sticks, with sand pads to identify footprints or camera traps) may be required to determine whether holts are active, inactive or disused. Otters do not tolerate disturbance at or near holts that are in active use.

If a period of time has elapsed between the recommended pre-construction survey and commencement of the works (>10-12 months, TII 2008), a further inspection of the development area, immediately prior to the works, should be carried out to ensure that no new holts have been created in the intervening period and to check if any of the previously identified holts are in active use by breeding females or have otter cubs present.

4.5.3 Construction Phase

Once the above pre-construction mitigation measures have been established, the following applies to all stages of the Construction Phase for the Proposed Development unless specific measures have been identified.

As it has been identified that the Proposed Development could potentially affect QI species associated with the Blackwater River SAC during the Construction Phase as a result of the previously identified potential impacts (hydrological, hydrogeological and land/air pathways), the mitigation measures listed in the following sections will be undertaken.

4.5.3.1 Mitigation 5: Confirm Storage, Cut and Fill Requirements

Prior to construction commencing the Contractor will be required to confirm quantities of waste which will be generated by the excavation works for the substructure, roads and underground civil infrastructure, and how these will be stored, reused or exported from the Site. The contractor will be required to determine the number and size of settlement tanks and temporary surface water percolation areas required (more detail provided below in section 4.5.3.3).

Where temporary storage of topsoil is required on site, the soil will be located as far as feasible from any existing surface water drains and the River Blackwater, will be appropriately covered and a silt fence or bunding will be installed around it to ensure no soils and sediments are washed out overland to the existing surface water networks, or directly into River Blackwater.

The following table shows the estimated totals of cut and fill for the Proposed Development as known at the time of submission:

TABLE 8. ESTIMATED CUT AND FILL REQUIREMENTS FOR PROPOSED DEVELOPMENT.

Estimated Cut and Fill Requirements			
	Cut (m3)	**Fill (m3)**	**Net Cut (m3)**
Topsoil	17189		17189
House Plots	19564	4645	14918
Roadways	5258	1972	3286
Back Gardens and Driveways	9356	9252	104
Total	**51366**	**15869**	**35497**

In addition to the above, the Contractor will prepare Construction Method Statements for key construction activities, including but not limited to:

- Site set-up;
- Sequence of works – in particular, soil disturbance and reinstatement;
- Earthworks;
- Pouring of concrete;
- Construction of residential units;
- Construction of settlement ponds;
- Landscaping works, and;
- Emergency protocols for surface water management.

The Employers Representative and ECoW will be required to review and sign off on all Construction Method Statements prior to works commencing. All method statements prepared for the Construction Phase will be included and transferred into the SOWOR.

4.5.3.2 Mitigation 6: Best Practice Measures on Water Quality Protection

A potential impact to the water quality of the Blackwater River Special Area of Conservation (SAC) was identified as a result of possible discharges of Construction related surface waters containing sediment, silt, oils and/or other pollutants into the Blackwater River, located south of the Proposed Development Site.

Appropriate mitigation measures have therefore been designed to address any potential risks posed by construction to water quality and the Qualifying Interests of the Blackwater River SAC, particularly aquatic species including fish species, Freshwater Pearl Mussel and White-clawed Crayfish. These measures will prevent impacts, thus maintaining the integrity of this European Site.

These mitigation measures will treat the source (e.g., refuelling of plant to be carried out at designated refuelling station locations on Site) or remove the pathway (e.g., no release of wastewater generated on-Site into nearby drains or to ground during the Construction Phase).

4.5.3.2.1 Best Practice guidance

All works carried out as part of the Proposed Development will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990.

Personnel working on the Site will be trained in the implementation of environmental control and emergency procedures. Procedures and relevant documents produced will be formulated in consideration of standard best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction sites, Guidance for Consultants and Contractors (C532);
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005;
- BPGCS005, Oil Storage Guidelines;
- Environmental Protection Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2004)
- CIRIA 697, The SUDS Manual, 2007;
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004;
- Construction Industry Research and Information Association (CIRIA) C648: Control of water pollution from linear construction projects: Technical guidance (Murnane et al. 2006);
- CIRIA C649: Control of water pollution from linear construction projects: Site guide (Murnane et al. 2006); and
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

Note that *Margaritifera* protection is generally more restrictive than fisheries protection, hence the trigger levels managed by the SOWOR may be stricter than would be assumed by the above guidance.

4.5.3.2.2 Maintenance of Plant and Machinery

- All plant and equipment will be regularly cleaned and properly maintained.
- Pumped concrete will be monitored by the ECoW/SOWOR to ensure there is no accidental discharge and will be carried out in suitable weather conditions (for example during dry weather conditions), and as advised by the commencement and abandonment triggers specified in the SOWOR, and with impermeable pouring mats laid down where possible.

4.5.3.2.3 Building/Road Network and Services

- The Proposed Development's road network will be finished with tarmac or asphalt surface which will discharge runoff to a piped drainage system, and surface water drains will be installed in roads and streets and in pre-determined wayleaves adjacent to building structures.
- All car parking and refuel areas at the Site will be located on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater (location shown in Appendix 4).

4.5.3.2.4 Earthworks Mitigation

The proposed earthworks mitigation measures for both the Construction and Operational Phases include:

- A street sweeper will attend Site regularly to clean the road when there are truck movements in and out of the site.
- Hard surface roads will be regularly swept to remove mud and aggregate materials from their surface;
- Public roads outside the Site will be regularly inspected for cleanliness, and cleaned as necessary;
- Material handling systems and Site stockpiling of materials will be designed and laid out to minimise exposure to wind; and
- Water misting or sprays will be used on stockpiles as required if particularly dusty activities are necessary during dry or windy periods. Note that excessive water use should be avoided to ensure no significant flows towards the Blackwater River are created inadvertently.

4.5.3.3 Mitigation 7: Control of Emissions to Surface Water, Groundwater and Soil

In addition to the above best practice measures, the following mitigation measures have been developed to further ensure no adverse impacts arise as a result of the Construction Phase of the Proposed Development.

Mitigation or control measures for surface water management will be dependent on appropriate implementation and local site conditions (including factors like soil type, slope, drainage, terrestrial habitat, landscape features and characteristics of the receiving environment). The following outlines a strategy for the management of surface water on site.

4.5.3.3.1 Stockpiling

Where material is being temporarily stockpiled onsite pending waste classification for removal off-site or for reuse in the Proposed Development, the material will be temporarily stockpiled in a designated, secure and impermeable area onsite. The temporary stockpiling of materials onsite will be undertaken in consultation with the Client, and where required the Environmental

Regulation Unit of CCC and the EPA, prior to commencing storage, to ensure that any relevant authorisations are obtained and that spoil is managed, at all times, in accordance with all relevant legislation. Surplus soil identified as waste soil will be considered a waste until compliantly removed from the site and received at the final authorised recovery/reuse/disposal facility in accordance with all waste management legislation.

Stockpiles of different waste material will be located, maintained, and separated by a sufficient distance to prevent any inadvertent mixing of excavated material. All stockpiles will be clearly identified (e.g., signage) and recorded on a site map.

When a stockpile has been sampled for classification purposes, it will be considered to be complete, and no more soil will be added to that stockpile prior to disposal. An excavation/stockpile register will be maintained on-site showing at least the following information:

- Stockpile number;
- Origin (i.e., location and depth of excavation);
- Approximate volume of stockpile;
- Date of creation;
- Description and Classification of material;
- Date sampled;
- Date removed from site;
- Haulier details including waste collection permit details;
- Disposal/recovery destination including waste facility permit / licence details; and
- Photograph.

Details on the management of stockpiles and procedures to prevent environmental and nuisance issues are set out in the CEMP. Stockpiles will be located, arranged and managed so that risk to receiving water, and other receptors, from silt and contaminants is minimised.

Silt fencing will be provided around stockpiles to ensure no silt laden run-off overland into the Blackwater River or any other waterbodies arises from same. Further information on stockpiling and wase management procedures are available in the Resource Waste Management Plan (RWMP) and Operational Waste Management Plan (OWMP) produced by Enviroguide Consulting for the proposal under separate cover.

4.5.3.3.2 Control of Fuels, Oils, and Chemicals

Fuel, oils and chemicals used during construction are classified as hazardous. Storage of fuel will be undertaken with a view to protecting any essential services (electricity, water etc.) and the receiving water environment. The following must be adhered to:

- A designated area or areas for fuel storage and refuelling should be set up according to best practice:
    - at least 50 m from a spring or borehole and 10 m from a watercourse or drain;
    - on level ground;
    - on an impermeable base – concrete slab or other areas of hardstanding;
    - under cover to prevent damage from the elements;
    - in secure areas;
    - well away from moving plant, machinery and vehicles.
- Oils and chemicals used and stored on-site will be sealed, secured and stored in a dedicated internally bunded chemical storage cabinet unit or inside bunded areas to

prevent any seepage to ground. There will be clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.

- Bunds will comply with the requirements of Environmental Protection Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2004) and Enterprise Ireland Best Practice Guide BPGCS005 Oil Storage Guidelines. All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following:
    - 110% of the capacity of the largest tank or drum within the bunded area;
    - 25% of the total volume of substance that could be stored within the bunded area;
- An up-to-date inventory of the type of product stored/used and the quantity available on site will be established and maintained by the contractor. The register shall be available at all times and shall include as a minimum:
    - Valid safety sheets;
    - Health & Safety,
    - Environmental controls to be implemented when storing, handling, using and in the event of spillage of materials; emergency response procedures/precautions for each material; the Personal Protective Equipment (PPE) required when using the material.
- Bulk quantities of fuel will not be stored at the Site and fuel required for plant and equipment will be delivered directly from a delivery tanker. Fuel will only be stored in the quantities required for emergency use.
- All drums to be quality approved and manufactured to a recognised standard. If drums are to be moved around the Site, they will be secured and moved on spill pallets. Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.
- Vehicle or equipment maintenance work will take place in a designated impermeable and bunded area within the Site;
- Emergency response procedures will be put in place for the event of spillages of fuels or lubricants. A specially trained and dedicated Environmental and Emergency Spill Response team will be appointed by the Contractor before the commencement of works onsite.
- Site staff will be familiar with emergency procedures for accidental fuel spillages;
- Spill kits including oil absorbent material will be provided so that any spillage of fuels, lubricants or hydraulic oils can be immediately contained;
- In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Site and compliantly disposed off-site. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures and EPA guidelines;
- All staff on-site will be fully trained on the use of equipment to be used on-site;
- Portable generators or similar fuel containing equipment will also be placed on appropriately sized drip trays or bunds;
- All machinery will be routinely checked to ensure no leakage of oils or lubricants occurs during the Construction Phase. Any leaks or spillages will be immediately contained, and the contaminated soil removed from the site and disposed of properly;
- Staff responsible for the maintenance and cleaning of vehicles will be trained and follow vehicle cleaning procedures. Details of the procedures in the work area will be posted for easy reference. Use of cleaning chemicals will be minimised;

- Machinery including hand-tools will never be washed in watercourses or drainage ditches or within 50m of same. Wastewater arising from machinery or equipment washing will be collected in a designated container which will be subsequently sent off site for compliant waste management. Washing of machinery and equipment if required will be within a designated bunded area, the location of which will be agreed with the ECoW prior to the commencement of works;
- Paint or treatment product waste and washings will not be allowed to enter the surface water drainage or management systems on Site. This will be achieved by undertaking the cleaning of any paint or treatment product equipment in a contained area with any waste and washings disposed of to a licensed facility.
- Fuels, lubricants, and hydraulic fluids for equipment used on the construction Site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice (Enterprise Ireland BPGCS005).

4.5.3.3.3 Spill/Emergency Response Plans

- Robust and appropriate Spill Response Plan and Site Environmental Emergency Plans (SEP) will be developed in consultation with the ECoW and implemented for the duration of the works. These will include the following:
    - Identifying fuel storage and refuelling locations on designated areas within the Site compound. These will be located away from drainage ditches/waterbodies, and on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater;
    - Identifying spill kit locations (spill kits will be required for each piece of heavy equipment (e.g., excavators, loaders, trucks, etc.,) which will be at least 21L drum size each with spill pads, sorbent, small boom, plastic garbage bag and gloves;
    - A specially trained and dedicated Environmental and Emergency Spill Response team will be appointed before the commencement of works on Site.
    - Staff will be trained and experienced in using appropriate control measures and spill kits on-Site, and will be familiar with the location of all spill kit locations and the Site layout
- A register will be kept of all hazardous substances either used on Site or expected to be present. The register shall be available at all times and shall include as a minimum:
    - Valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials;
    - Emergency response procedures/precautions for each material;
    - Personal Protective Equipment (PPE) is required when using the material.

The above spill/emergency response plans must be designed in accordance with the pre-construction measures outlined in Section 4.5.2 above.

4.5.3.3.4 Silt Fencing

Silt-fencing will be installed along the southern extent of the Site between the extent of the works at Site and the Blackwater River. This should take into account the landscaping of the open space in the south of the Site, and the Site topography (see Figure 7). Silt fencing will be used to isolate the Site from receiving surface water bodies, and to isolate designated surface water percolation areas. The following criteria, as per CIRIA C648, with additions for *Margaritifera* must be adhered to for the installation/operation of silt fencing:

- Silt fencing will be installed in two parallel layers as described below, and three layers at high-risk areas in advance of works commencing;
- As noted previously, the Blackwater River is protected by a 80m vegetative buffer at the southern boundary of the Site where the existing public park is located. A single, trenched silt fence will be installed between the Site and this southern boundary in advance of works commencing;
- Silt fencing is also required around the following areas prior to works commencing: stockpiles, drainage ditches (where present), percolation areas associated with settlement tanks and the water management system on site;
- Silt fencing must be installed along a level contour so water does not pond more than 400mm at any point;
- An undisturbed area behind the fence must be retained for runoff to pond and sediment to settle;
- No more than 0.5 ha of concentrated flow shall drain to any point along the silt fence;
- The fabric will be fixed to strong supporting posts at regular intervals;
- In areas where more than one layer of silt fence is required, the following applies:
    - The inner silt fence fabric will be buried at least 100 mm into the ground;
    - The outer silt fence fabric will be folded at ground level and not buried;
- All silt fence installation will be completed under the advisement of the on-site ECow;
- The silt fences will be positioned at central and right angles to flow, with the ends curving up slope to ensure water ponds behind the fence and does not flow around it;
- The fence will be supported by a wire mesh if the fabric selected does not have sufficient strength;
- Accumulated silt will be cleared regularly; commercially produced silt fences have a printed indicator line over which silt should not accumulate;
- The silt fence must be capable of preventing 180 μ (micron) and above sediment from passing through;
    - Silt fences must not be decommissioned until all land is vegetated;
    - The buried inner silt fence is removed first;
    - The outer folded silt fence is removed last when the inner silt fence ground has revegetated.

High risk areas where triple silt fencing is required are areas between the works area and all surface water bodies. Given that there are no watercourses, drains or sewers present on Site, the southern boundary where the topography of the Site slopes steeply toward the Blackwater River is considered a high risk area and will require triple silt fencing.

Silt fencing must be positioned at a minimum of 10 metres and where possible 50 metres from surface water bodies. The 2-3 layers of silt fencing shall be spaced in 1 metre intervals. Every

precaution will be taken to ensure that the installation of the silt fencing itself does not result in emissions of silt to the Blackwater River. To this end, sequential excavation, and reinstatement of turves as the silt fence is trenched will be implemented. Silt fencing will be placed as close as possible to the construction works while allowing for sufficient space for maintenance and clearance of silt and debris.

Any drains within the Site (that are identified by the ECoW) will be blocked or isolated with check-dams and silt curtains in series downstream of the works area prior to infilling/modification.

The ECoW shall regularly inspect the silt fences as per the SOWOR[6] to ensure they are functioning as intended, and no damage has occurred (e.g., holes, blown over in wind). The fencing shall be amended as required.

Silt fencing shall remain in place for the duration of works and until exposed soils have revegetated.

In no circumstances will terrestrial works be undertaken outside the silt fences or within the channel of the Blackwater River.

4.5.3.3.5 Natural Vegetative Buffer

A natural vegetative buffer of tall grass etc., (a minimum of 5m or as much as possible) will be located between the silt-fencing and the Site; as an additional layer of filtration.

4.5.3.3.6 Erection of Site Hoarding

It is noted that the at present the Site is already contained, in that it is enclosed by metal fencing and a locked gate along the western and southern extent to ensure public access does not occur. A boundary wall and wooden fencing currently enclose the northern and eastern extent of the Site boundary.

However, the Construction Phase of the Proposed Development includes the erection of Site hoarding to further prevent access to the Site by the public, and, to the river by Site workers and construction/site worker vehicles. Thus, ensuring there is no encroachment from Construction Activities, personnel, or machinery outside of the designated works area, upon same. Machinery will not operate or be stored outside of delineated works areas.

Site hoarding will be restricted to the Site boundary.

4.5.3.3.7 Location of Site Compound

The Site compound will not be located within 50m of the Blackwater River SAC boundary or any other watercourse and will be located on flat ground. The construction compound for the Development will be located in the green area east of the Development so that it will not need to be moved during each phase (See Appendix 4 for compound location).

In addition, Construction Phase car parking will be located opposite the compound. Facilities include; a site office and welfare facilities, including temporary portaloos until a toilet block is established, with electricity and potable water supplied through existing connections.

[6] Schedule of Work Operations Record (SOWOR) [See CEMP provided under separate cover for further details]

4.5.3.3.8 Ecological Clerk of Works (ECoW)

A suitably qualified Ecological Clerk of Works (ECoW) will be present on Site to ensure that all mitigation measures identified in this NIS, and the Biodiversity Chapter (of the EIAR) and CEMP that accompany this report under separate cover are adhered to in full.

The ECoW must be present at all times until monitoring for each construction element listed on the SOWOR (i.e., for which a method statement exists) is no longer required, and has been signed off by the ECoW and Employers Representative, i.e.; the Construction Phase Water Management System is no longer operational and has been safely decommissioned/removed from the Site (i.e., all silt fencing and settlement tanks etc. removed); ecological monitoring for any other element of the Construction Phase is no longer required

4.5.3.4 Mitigation 8: Erosion and Sediment Control Programme

- The sequencing of excavations must be carefully planned by the contractor to ensure that large areas of exposed soil are not left as such for extended periods of time.
- The contractor will prepare a cut-and-fill plan that must adhere to the following criteria:
    - Topsoil stripping to be phased to account for existing topography on the Site and reduce likelihood of surface water run-off during wetter periods or periods of heavy rainfall.
    - Topsoil-stripping of each phase of works must be delayed until shortly before construction begins, rather than stripping the whole site many months before construction.
    - As much existing vegetation within and around the site perimeter, stockpiles and haul roads as possible will be retained and protected during construction with fencing, signs etc.
    - Stockpiles will be managed as per criteria in section 4.5.3.3.1
    - Open trenches will be closed and stabilised as soon as possible. Trenching willbe sequenced so that most open portions of the trench are closed before newtrenching is begun.
- Earthworks shall only be undertaken as per the commencement and abandonment triggers set out in the SOWOR.
- A works exclusion zone adjacent to the entire river channel adjacent to the works areawill be established in consultation with the ECoW and clearly demarcated.

4.5.3.4.1 Surface Water Treatment and Retention

Surface water runoff or groundwater encountered during the excavation of the proposed new underground structures and foundations shall be pumped clear from the excavations. Water shall be directed toward a sump within the excavations. Using submersible pumps can generate more sediment through water turbulence. To avoid this, a corner of the excavation shall be used as a sump and care taken to avoid disturbing that corner. The pipe intake shallbe fitted with a device to minimise disturbance of sediment within the sump, such as a perforated oil drum, a short length of wide bore perforated pipe or concrete manhole rings containing (non-limestone) granular fill.

Dewatering pumps will have appropriate capacity to pump out the residual seepage from excavations to maintain the works area excavation dry. The pumps shall be integrated sumpsor shall sit within a fully bunded impermeable surface which is monitored and emptied regularly.

Water from excavations shall be pumped to appropriately sized settlement ponds or tanks for subsequent percolation/discharge of attenuated water to adjoining greenfield areas. The outlet pipe from the settlement tank shall be fitted with a silt bag or sock. Local ground conditions must be taken into consideration for the appropriate siting of the percolation areasand settlement ponds. The settlement ponds and percolation areas must be carefully sited asper the following criteria:

- Settlement ponds and percolation areas must be sited on flat areas at least 50m from a watercourse or drain.
- Double silt fencing will be installed around the percolation area (more detail on silt fencing is provided above in section 4.5.3.3.4).
- Settlement ponds and surface water percolation areas must be sized to allow for:
    - Expected rainfall intensity
    - Expected rainfall duration
    - Size of the drained area
    - Permeability of the soil
    - Groundwater vulnerability.

The number of settlement ponds and percolation areas required shall be determined by the Site Contractor, using the information as obtained from site investigations and ground water sampling to ensure that the treatment provided suits the actual ground conditions encounteredduring the construction works.

Settlement ponds will be excavated to a depth. All ponds constructed in the poorly draining areas of the Site will be fully and securely lined with terram and dressed in clean stone across the base. Limestone will not be used within the ponds. For the well-drained areas of the site to the south the ponds will be dressed in clean stone across the base and water will be allowed to infiltrate to ground, however contingencies will be put in place in the event that a discharge is required for these settlement ponds should the infiltration prove to be unsuccessful. Where this is the case, the discharge will be managed in the same way as the lined settlement ponds. If settlement tanks are required, the tanks must be sited as per the criteria listed above, with the discharge directed to a designated percolation area. The ponds will be securely fenced off and appropriate safety signage erected. Where relevant, dischargewater from the settlement pond will be inspected on a daily basis by the ECoW with a handheld turbidity probe. If turbidity exceeds triggers set in the SOWOR, the flow will be stopped immediately and appropriate remedial works (e.g., enlargement of the pond, deployment of mobile ‘silt busters’) will be carried out.

Water from the settlement ponds/tanks must be discharged at a rate that will allow water to infiltrate the ground within the percolation area.

Uncontrolled water leaks from pumps and hoses can create additional surface water problems.To avoid damage, discharge hoses shall be routed out of the way of vehicle movements. Wherever hoses pass over a solid edge (the top of an excavation or a concrete sump, for example), care shall be taken to ensure no damage can occur. Regular daily checks shall becarried out on the pump, hoses and couplings for leaks and kinks by site personnel, with anyproblems being fixed immediately. Electric pumps shall be used wherever possible to reducethe use of fuels on site.

Should water pumped from excavations become contaminated (e.g., from a hydrocarbon spillor leak), pumped water must be tankered off site and treated at an appropriately licensed facility.

Sediment collected within the settlement ponds shall not be disposed of on site. Sediment accumulating within settlement ponds shall be carefully removed and disposed of off-site to an appropriate waste facility.

Should overland flow or surface water run-off into excavations affect the integrity of the various mitigation measures in place, temporary interceptor drains will be installed within the Site, asper a detailed method statement, with the locations agreed with the Employers Representativeand ECoW. The drains will be used to divert runoff around the works area to a location withinthe Site that is low risk (e.g., where silt fencing has already been installed) where it can be redistributed over the ground surface as sheet flow. The drains must be managed through theSOWOR system.

4.5.3.5 Mitigation 9: Waste Management and Disposal

Waste management during the Construction Phase will be managed in accordance with the Construction and Demolition Waste Management Plan prepared by Enviroguide Consulting (2024d) and all updates to that document for the Development. Waste will be managed in compliance with the Waste Management Act 1996 (as amended) and all subordinate legislation. Measures to minimise waste generation, promote re-use and recyclingand recovery of wastes will be implemented throughout the Construction Phase. Where this cannot be carried out, all wastes will be disposed of at licenced waste facilities. Please refer to Appendix 2 for a complete list of the licenced waste facilities in the Cork area.

Waste will be stored onsite in such a manner as to:

- Prevent environmental pollution.
- Minimise nuisance generation such as dust.
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling, and recovery.

In the event that hazardous soil, or historically deposited waste is encountered during the sitebulk excavation phase, the contractor will notify Cork County Council and provide a Hazardous/Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal/treatment, in addition to information on the proposed authorised waste collector(s). Please refer to the CDMP and CEMP prepared for the Development under separate cover, for detailed information on waste(s) arising from the Proposal, and the appropriated management and disposal of same.

4.5.3.6 Mitigation 10: Invasive Alien Plant Species Management

The non-native/invasive flora recorded at the Site should be controlled/removed as per best practice guidelines and in consultation with the relevant qualified invasive species personnel.

4.5.3.6.1 Biosecurity Measures

The following best practice Site hygiene and biosecurity measures will be in place to avoid the spread of any Invasive Alien Plant Species (IAPS) into the Site or surrounding areas:

Measures to control the spread of IAPS:

- An IAPS specialist will be instructed to treated and eradicate the Butterfly Bush on Site per TII Technical Guidance on: '*The Management of Invasive Alien Plant Species on National Roads'* published in December 2020, and per the methods outlined in the CEMP report.

- To reduce the likelihood of invasive species (IAPS) being introduced to the Site from construction works on other sites, all soils/materials being introduced to the Site will be sourced from a certified invasive flora-free source Site, to ensure no introduction of invasive plant materials to the Site occurs. All plant and equipment will be visually inspected before being permitted on Site.
- Vehicular movements will be restricted to the footprint of the Proposed Development. Construction plant and vehicles will not encroach onto areas that are not permitted for the development.
- All vehicles leaving the Site and/or transporting infested IAPS soil/materials must be thoroughly pressure-washed with clean water in a designated wash-down area before being used for other work. Mud and organic debris will not be allowed to accumulate on tyres, wheels or under wheel arches. Any machinery or equipment returning from a different construction Site will be cleaned, steam washed and visually inspected again before re-entering the Site.
- Material handling systems and Site stockpiling of materials will be designed and laid out to minimise exposure to wind.
- Water misting or sprays will be used on stockpiles as required if particularly dusty activities are necessary during dry or windy periods to prevent seed dispersal of IAPS.
- Where any material containing invasive plant species is collected (e.g., by hand-pulling or cutting), it is important that its disposal does not lead to a risk of further spread. Although no such IAPS were recorded on Site, the movement of plant material of any plants listed on the Third Schedule requires a licence from the National Parks and Wildlife Service (NPWS) under Section 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended). Invasive species (particularly roots, flower heads or seeds) must be disposed of at licensed waste facilities or composting sites, appropriately buried, or incinerated having regard to relevant legislation. All disposals must be carried out in accordance with the relevant Waste Management legislation.

4.5.3.6.2 PPE Measures

- Personnel working on the Site will ensure that all PPE including clothing and footwear brought to the Site is to be clean and dry. All PPE is to be visually inspected, and any attached vegetation or debris removed. Work boots will be dipped in or scrubbed with a disinfectant solution and thoroughly dried afterwards before being used on the Site for the first time, ensuring they are visually free from soil and organic debris, to prevent the inadvertent spread of IAPS material.

4.5.3.6.3 Training and Response Plans/Measures

- Construction personnel involved in works are to be trained in basic relevant invasive species identification, prevention, and management.
- Where any IAPS is identified within the footprint of the work, the appointed contractor in consultation with the ECoW is to develop and implement an appropriate method statement with regard to managing IAPS on-Site. Fencing and/or advisory signage is to be erected. Where stands are small, comprising individual plants, the use of signage may suffice.

All IAPS management and control measures implemented on-Site during the Construction Phase are to be carried out strictly in accordance with best practice guidance as set out in 'The

Management of Noxious Weeds and Non-native Invasive Species on National Roads' (TII (formerly NRA), 2010), 'The Management of Invasive Alien Plant Species on National Roads – Technical Guidance' (TII, 2020) and 'Best Practice Management Guidelines' by Invasive Species Ireland (2008).

4.5.3.7 Mitigation 11: Reduction of Dust Related Impacts

In order to prevent dust being generated during the Construction Phase, permanent controls using best available technology will be employed by the appointed Main Contractor. Where preventing dust is not reasonably practicable then it will be reduced as far as reasonably practicable.

In order to sufficiently mitigate any impacts associated with dust generation at the site, a Dust Management Plan (DMP) will be developed and implemented. The DMP may include measures to control other emissions, at the request of the Local Authority. The DMP will include a program for dust monitoring and for conducting regular onsite and offsite dust inspections. The level of detail to be included in the DMP will depend on the risk, and shouldinclude, as a minimum, the recommended mitigation measures included in this document.

Dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations will be agreed with the Local Authority. Baseline monitoring will commence at least three months before work commences onsite, and/or before work on specific phases commences. Further guidance is provided by the Institute of Air Quality Management (IAQM) on monitoring during demolition, earthworks and construction.

Monitoring of dust deposition will be undertaken at the nominated boundary locations to ensure that dust levels comply with the TA Lift limit value of 350mg/(m²/day) based on a 30-day average using Bergerhoff gauges (Limits to be agreed with local authority).

The Main Contractor will be required to allocate suitably qualified and experienced personnelto ensure that the generation of dust is minimised and effectively controlled. The appointed personnel will:

- Carry out daily inspections onsite and at the site boundary, record inspection results, and make an inspection log available to the local authority when asked.
- Carry out off-site inspections of receptors (including roads) to monitor dust, including regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the Site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on or off site, and the action taken to resolve the situation in the logbook.
- Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

The Main Contractor will plan the site layout so that machinery and dust causing activities are located away from receptors, as far as is possible, and will implement additional control measures including:

- Erecting solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on Site.
- Fully enclosing specific operations where there is a high potential for dust production and the Site is active for an extensive period.
- Remove materials that have a potential to produce dust from Site as soon as possible, unless being re-used on Site.
- Netting will be provided to enclose scaffolding to mitigate escape of air borne dust from existing buildings (where applicable).
- Piling machinery will be shrouded when operating near to boundaries.
- Dust emissions over the site boundary will be minimised using static sprinklers or other watering methods as necessary.
- Water sprays for dust suppression will be affixed to mechanical excavators/munchers involved in demolition works, noting that excessive use of water should be avoided to limit potential for surface water flows towards the Blackwater River.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Demolition waste will be removed from site as quickly as possible to minimise risk of dust generation and any fine material will be covered with a tarpaulin or similar material and tied down.
- In areas of poor natural ventilation, dust capture/extraction methods will be employed by the Main Contractor.

Wherever construction activities that have the potential to create dust are taking place at the Site of the Proposed Development, the following control measures will be implemented:

- Cutting, grinding or sawing equipment will be fitted with, or used in conjunction with, suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems.
- Chutes, conveyors and covered skips will be used for moving and storing dusty materials.
- Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised and fine water sprays will be used on such equipment wherever appropriate.
- Ensure equipment is readily available on Site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian or mulches where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.

During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust. Site roads (particularly unpaved roads) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions of 15 km/hr. Studies show that these measures can have a control efficiency ranging from 25 to 80%. Additional dust control measures for Site roads include:

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. Avoid excessive use of water to limit potential for surface water flows towards the Blackwater River. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a Site logbook.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- If required to control nuisance wheel dust; implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- If practicable, the wheel wash facility will be employed at the exit of the Site so that traffic leaving the Site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain.
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates will be located at least 10 m from receptors where possible.

Public roads outside the Site will be regularly inspected for cleanliness, as a minimum daily, and cleaned as necessary. A road sweeper will be made available to ensure that public roads arekept free of debris. Vehicles delivering material with potential for dust emissions to an off-sitelocation will be enclosed or covered with tarpaulin always to restrict the escape of dust.

In addition to the above, the following general dust control measures will be followed for the duration of the Construction Phase of the Proposed Development and will ensure no significant dust-related impacts occur to nearby sensitive receptors.

- In situations where the source of dust is within 25m of sensitive receptors screens (permeable or semi-permeable) will be erected.
- Haulage vehicles transporting gravel and other similar materials to the Site will be covered by a tarpaulin or similar.
- Access and exit of vehicles will be restricted to designated access/exit points.
- Bowsers will be available during periods of dry weather throughout the Construction period.
- Stockpiling of imported materials will be avoided where possible with imported materials ideally placed on Site in their proposed location upon receipt with double handling avoided.
- Stockpiles will be stored in sheltered areas of the Site, covered, and watered regularly or as needed if exposed during dry weather.
- Gravel should be used at Site exit points to remove caked-on dirt from tyre tracks.
- Hard-surfaced roads will be wet-swept to remove any deposited materials.
- Unsurfaced roads will be restricted to essential traffic only.
- The frequency of cleaning will be determined by the Site agent and is weather and activity dependent.
- The height of stockpiles will be kept to a minimum and slopes should be gentle to avoid windblown soil dust.
- The following will be dampened during dry weather:
    - Unpaved areas subject to traffic and wind.
    - Stockpiles.
    - Areas where there will be loading and unloading of dust-generating materials.
- Under no circumstances will wastewater from equipment, wheel or surface cleaning enter the local drainage network.

4.5.3.8 Mitigation 12: Noise Reduction Measures

Noise generated during the Construction Phase of the Proposed Development could cause temporary disturbance to Otter (and other fauna) which may be utilising the Blackwater River located 80m south of the Site of the Proposed Development. To mitigate this disturbance, the below listed measures will be implemented. These measures will ensure that any noise disturbance to otters or any other fauna species in the vicinity of the Site of the Proposed Development will be reduced to a minimum.

In order to control likely noise impacts caused by the Proposed Development, best available technology will be employed by the appointed Main Contractor to minimise noise from the construction operations and all comply with Safety, Health and Welfare at work (construction) Regulations 2006 to 2013, Safety, Health and Welfare at Work Act 2005, BS 6187:2011 - Code of Practice for full and partial demolition, BS 5228:2009+A1:2014 Parts 1 & 2 - Code of Practice

for noise and vibration control on construction and open sites – Vibration, Environmental Protection Agency Act 1992 Sections 106-108, including all Local Authority specific requirements for this specific site.

Work methods will be implemented to ensure minimal noise and vibration are created; methods will include:

- Limiting the hours during which site activities likely to create high levels of noise or vibration are permitted.
- Establishing channels of communication between the contractor/developer and Local Authority.
- Appointing a site representative responsible for matters relating to noise, vibration, and other impacts of site activity
- Notifying the neighbouring community of any forthcoming unusual construction activities
- All complaints will be recorded and investigated. If it is found that the complaint is legitimate, amelioration measures will be introduced to negate the re-occurrence.

Furthermore, it is also proposed that a variety of practicable control measures be employed. This will include the following:

- Selection of plant of low inherent potential for generation of noise and / or vibration.
- Plant and equipment will be properly maintained.
- Erection of barriers as necessary around plant of high impact.
- Situate noisy/vibratory plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated structures where necessary.
- Any plant that is not in use for extended periods of time will be switched off.
- All access roads will be kept even so as to mitigate the potential for vibration from lorries.
- Appropriate signs will be erected both reminding and requesting site personnel to keep noise to a minimum within the construction site.

For controlling vibration reference should be made to BS 5228:2009+A1:2014 which offers detailed guidance on the control of vibration from demolition and construction activities. In general, BS5228:2009+A1:2014 advises the following:

- Use rubber linings in, for example, chutes and dumpers to reduce impact noise.
- Minimize drop height of materials.
- Regular and effective maintenance by trained personnel should be carried out to reduce vibration from plant and machinery.
- Hand demolition, cutting of the separate on joints of the buildings in advance and small robotic breakers and ‘munchers’.

4.5.3.9 Mitigation 13: Otter Mitigation Measures

With regards to Site works in the vicinity of active Otter holts, where they are identified during the pre-construction Otter survey outlined in section 4.5.2.4 above, the following will be adhered to:

- No works should be undertaken within 150m of any holts at which breeding females or cubs are present. Following consultation with NPWS, works closer to such breeding holts may take place provided appropriate mitigation measures are in place, e.g., screening and/or restricted working hours on Site.

- No wheeled or tracked vehicles (of any kind) should be used within 20m of active, but nonbreeding, Otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15m of such holts, except under licence.
- The prohibited working area associated with Otter holts should, where appropriate, be fenced with temporary fencing prior to any possibly invasive works. Appropriate awareness of the purpose of the enclosure should be conveyed through notification to site staff and sufficient signage should be placed on each exclusion fence. All contractors or operators on Site should be made fully aware of the procedures pertaining to each affected holts.
- Where holts are present in close proximity to invasive construction works but are determined not to require destruction, construction works may commence once recommended alternative mitigation measures to address Otters have been complied with in agreement with NPWS.

4.5.4 Operational Phase

4.5.4.1 Mitigation 14: Surface Water Management Approach

Surface water discharge rates from the proposed surface water drainage network will be controlled by a vortex flow control devices (Hydrobrakes or equivalent) and associated attenuation tanks. Surface water discharge will also pass via a full retention fuel/oil separators (sized in accordance with permitted discharge from the site).

The proposed surface water drainage network will collect surface water runoff from the site via a piped network prior to discharging off site via the attenuation tanks, flow control devices and separator arrangement as noted above. Surface water runoff from the Site's road network will be directed to the proposed pipe network/constructed swales in green areas via conventional road gullies with additional surface water runoff from driveways and roofs also routed to the proposed surface water pipe network.

In order to reduce the effects of the surface runoff on potential flooding, a Stormwater Management Plan will be applied to surface water discharges into adjacent watercourses. The Stormwater Management Plan can be applied to control the rate of runoff from new development. The maximum permitted surface water outflow from the new development is to be restricted to that of the existing Greenfield site by the usage of attenuation storage. Control of runoff by attenuation methods requires a hydraulic control to restrict the magnitude of flows passing downstream, together with an upstream storage capacity to contain the volume of runoff held back by the hydraulic control. The flows are proposed to be attenuated in the surface water system by adopting a flood storage attenuation tank. The storage volume required has been designed using the computer aided design package Windes 10.4. The attenuation strategy for the Site is for the detention of flows in interlinked attenuation tanks. The capacity of the attenuation tanks will be designed to cater for the capacity required for a 1 in 100-year ARI event.

4.5.4.1.1 Surface Water Connection

Surface water at the Proposed Development will discharge into the existing public stormwater network located in the adjoining Castlelands estate.

4.5.4.1.2 Additional Project Design Features

Additional features of the Proposed Development which will serve to reduce potential effects on the hydrology of the Site and nearby Blackwater River SAC, are included in Section 4.5.1 above, *Avoidance by Design*.

4.5.4.2 Mitigation 15: Traffic Management Plan

A Traffic Management Plan has been produced by PUNCH Consulting Engineers (2024) under separate cover for this Development and provides suitable measures for the control of increased human presence as a result of the Development.

4.5.4.3 Mitigation 16: Public Signage

In order to mitigate against an increase in human traffic with pets (specifically pet dogs) to the Blackwater River, signage should be erected, upon exiting the Site that clearly states all pets should be kept on leads at all times and not allowed to enter the river to limit direct disturbance and as flea and tick treatments can pose a threat to aquatic life, and that all dog foul must be picked up per existing national legislation.

4.6 Monitoring

4.6.1 Construction Phase Monitoring

During the Construction Phase, the following monitoring will be carried out by the ECoW to ensure the implemented mitigation measures are maintained effectively:

- All surface water and groundwater protection measures will be checked on a daily basis by a suitably qualified ECoW or appropriately trained site personnel as per the SOWOR (which can be prepared for the Development), to ensure they remain effective, and they will be checked more frequently during periods of moderate to heavy rainfall as deemed necessary.
- Similarly, invasive alien species/biosecurity protection measures will be checked regularly to ensure adherence to all measures so that they remain effective.
- All dust and noise mitigation measures proposed in this Report will be monitored by the on-site ECoW to ensure that they are adhered to.
- All mitigation measures outlined within this report and in the CEMP which accompanies this report will be monitored and adhered by the designated persons, as set out in both reports.

Note: All monitoring must be recorded with photographic evidence collected where possible. The response to any elevated/change in conditions must be as per the SOWOR.

4.6.1.1 Water Management System Monitoring

As part of the water management system the contractor, in consultation with the employers representative and the ECoW, will arrange for the installation of the necessary monitoring equipment for the monitoring of turbidity within the Blackwater River in advance of the Construction Phase commencing. This will require the placement of sondes upstream and downstream of construction site in order to establish a baseline against which to monitor the effectiveness of the WMS and inform the development of trigger values for the SOWOR.

4.6.1.1.1 Surface water protection monitoring

As part of the monitoring system on Site, the ECoW will undertake continuous monitoring of conditions at the Site, oversee the installation of Site hoarding, Site set up, creation of silt fences and settlement ponds, to ensure all mitigation measures outlined in this report, the Biodiversity Chapter and the CEMP are adhered to.

4.6.1.2 Waste Management Monitoring

The monitoring of C&D waste during the Construction Phase of the Proposed Development is recommended to ensure that impacts are not experienced beyond the Site boundary. The Main Contractor will be responsible for monitoring and record keeping in respect of waste leaving the facility and that these records will be maintained on site.

4.6.1.3 Monitoring of Noise and Vibration

A noise and monitoring specialist will be appointed to carry out quarterly monitoring of noise and vibration, with the first monitoring commencing the first week of construction. The monitoring will be carried out at the nearest sensitive locations which will be identified and mapped.

4.6.2 Operational Phase Monitoring

The Operational Phase will comprise residential use that is consistent with the neighbouring land use in the area.

The petrol interceptors should be maintained and inspected as outlined in the Surface Water Management Plan (DOSA, 2024b) to ensure continued functionality and water quality protection of the Blackwater River SAC.

4.7 Residual Impacts

Using the precautionary principle, it is considered that in the absence of suitable mitigation, the Proposed Development has the potential to cause significant adverse effects on the Blackwater River (Cork/Waterford) SAC; through construction related surface water contamination, leading to a reduction in water quality at this European site; and the potential dispersal of invasive plant species.

A set of mitigation measures have been proposed in Section 4.5 above to address the risks posed by the construction of the Proposed Development on the Blackwater River and subsequently the Blackwater River (Cork/Waterford) SAC. Once these measures are employed in full it is not envisaged that there will be any residual impacts associated with the proposed development that could adversely affect the integrity of the Blackwater River (Cork/Waterford) SAC, or any other European Site.

5 CONCLUSION

This NIS details the findings of the Stage 2 Appropriate Assessment conducted to further examine the potential direct and indirect impacts of the Large-scale Residential Development, located at Castlelands, Mallow, Co. Cork, on the following European site:

- Blackwater River (Cork/Waterford) SAC (002170).

The above site was identified by a screening exercise that assessed likely significant effects of a range of impacts that have the potential to arise from the Proposed Development. The AA investigated the potential direct and indirect effects of the proposed works, both during construction and operation, on the integrity and qualifying interests of the above European site, alone and in combination with other plans and projects, taking into account the site's structure, function and conservation objectives.

Where potentially significant effects were identified, a range of mitigation and avoidance measures have been recommended to avoid them. This NIS has concluded that, once the avoidance and mitigation measures are implemented as proposed, the Proposed Development will not have an adverse effect on the integrity of the above European site, individually or in combination with other plans and projects. Where applicable, a suite of monitoring surveys have been proposed to confirm the efficacy of said measures in relation to ensuring no adverse impacts on the QI habitats and species of the relevant European sites have occurred.

As a result of the complete, precise and definitive findings in of this NIS, it has been concluded, beyond reasonable scientific doubt, that the Proposed Development will have no significant adverse effects on the QIs of, and the integrity and extent of, the Blackwater River (Cork/Waterford) SAC (002170).

Accordingly, the Proposed Development will not adversely affect the integrity of any relevant European site.

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APPENDIX I – SITE SPECIFIC CONSERVATION OBJECTIVES

The following table lists the QIs and their site-specific conservation objectives for the relevant European sites assessed in this Screening Report. Those attributes and targets for which the risk of significant impacts via the identified S-P-R connections was assessed in this Screening Report are highlighted in green. See the main text for a detailed assessment.

Attribute	Target	S-P-R connection / potential impacts
Blackwater River SAC [002170] (NPWS 2012)		
1029 Fresh Water Pearl Mussel Conservation Objective: To restore the favourable conservation condition of the Freshwater Pearl Mussel in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Distribution	Maintain at 161km.	Yes: A hydrological connection exists between the Proposed Development and the habitat distribution of FWPM within the Blackwater SAC (See Map 8 of Conservation Objectives).
Population Size	Restore to 35,000 adult mussels	
Population Structure: Recruitment	Restore to least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length	
Population Structure: Adult Mortality	No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution	
Habitat Extent	Restore suitable habitat in more than 35km and any additional stretches necessary for salmonid spawning	
Water Quality: macroinvertebrate and phytobenthos (diatoms)	Restore water quality macroinvertebrates: EQR greater than 0.90; phytobenthos: EQR greater than 0.93	
Substratum quality: filamentous algae (macroalgae), macrophytes (rooted higher plants)	Restore substratum quality- filamentous algae: absent or trace (<5%); macrophytes: absent or trace (<5%)	
Substratum quality: Sediment	Restore substratum quality- stable cobble and gravel substrate with very little fine material; no artificially elevated levels of fine sediment	
Substratum quality: oxygen availability	Restore to no more than 20% decline from water column to 5cm depth in substrate	
Hydrological regime: flow variability	Restore appropriate hydrological regimes	
Host Fish	Maintain sufficient juvenile salmonids to host glochidial larvae	
1092 White-clawed Crayfish: Conservation Objective: To maintain the favourable conservation condition of White-clawed Crayfish in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Distribution	No reduction from baseline	Yes: As this species has recently been recorded within the main channel of
Population Structure: Recruitment	Juveniles and/or females with eggs in at least 50% of positive samples	

Attribute	Target	S-P-R connection / potential impacts
Negative Indicator Species	No alien crayfish species	the Blackwater River, albeit upstream of Mallow (at Site 8: Bridgetown Lower in Sweeney & Sweeney, 2017), a potential hydrological connection between the Proposed Development and this QI species exists.
Disease	No instances of disease	
Water Quality	At least Q3-4 at all sites sampled by EPA	
Habitat Quality: Heterogeneity	No decline in heterogeneity or habitat quality	
1095 Sea Lamprey: Conservation Objective: To restore the favourable conservation condition of Sea Lamprey in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Distribution: Extent of anadromy	Greater than 75% of main stem length of rivers accessible from estuary	Yes: a hydrological connection exists between the Proposed Development and the distribution of this QI species within the Blackwater SAC (See Map 10 of Conservation Objectives).
Population structure of juveniles	At least three age/size groups present	
Juvenile density in fine sediment	Juvenile density at least 1/m²	
Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	
Availability of juvenile habitat	More than 50% of sample sites positive	
1096 Brook Lamprey: Conservation Objective: To maintain the favourable conservation condition of Brook Lamprey in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Distribution	Access to all water courses down to first order streams	Yes: a hydrological connection exists between the Proposed Development and the distribution of this QI species within the Blackwater SAC (See Map 10 of Conservation Objectives).
Population structure of juveniles	At least three age/size groups of brook/river lamprey present	
Juvenile density in fine sediment	Mean catchment juvenile density of brook/river lamprey at least 2/m²	
Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	
Availability of juvenile habitat	More than 50% of sample sites positive	
1099 River Lamprey: Conservation Objective: To maintain the favourable conservation condition of River Lamprey in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Distribution	Access to all water courses down to first order streams	Yes: a hydrological connection exists between the Proposed Development and the distribution of this QI species within the Blackwater SAC (See Map 10 of Conservation Objectives).
Population structure of juveniles	At least three age/size groups of brook/river lamprey present	
Juvenile density in fine sediment	Mean catchment juvenile density of brook/river lamprey at least 2/m²	
Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	
Availability of juvenile habitat	More than 50% of sample sites positive	
1103 Twaite Shad:		

Attribute	Target	S-P-R connection / potential impacts
Conservation Objective: To maintain the favourable conservation condition of Twaite Shad in Blackwater River SAC, which is defined by the following list of attributes and targets:		
Distribution: Extent of anadromy	Greater than 75% of main stem length of rivers accessible from estuary	Yes: a hydrological connection exists between the Proposed Development and the distribution of this QI species within the Blackwater River SAC (which enter freshwater rivers from April – June each year to spawn).
Population structure: Age classes	More than one age class present	
Extent and distribution of spawning habitat	No decline in extent and distribution of spawning habitats	
Water quality: Oxygen levels	No lower than 5mg/l	
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 plant) growth	
1106 Atlantic Salmon (only in freshwater): Conservation Objective: To maintain the favourable conservation condition of Atlantic Salmon in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Distribution: Extent of anadromy	100% of river channels down to second order accessible from estuary	Yes: The main channel of the River Blackwater is a designated Salmonid Water under the European Communities (Quality of Salmonid Waters) Regulations of 1988. Therefore, a hydrological connection exists between the Proposed Development and the distribution of this QI species within the Blackwater SAC.
Adult spawning fish	Conservation Limit (CL) for each system consistently exceeded	
Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling	
Out-migrating smolt abundance	No significant decline	
Number and distribution of reed beds	No decline in number and distribution of spawning reeds due to anthropogenic causes	
Water quality	At least Q4 at all sites sampled by EPA	
1130 Estuaries: Conservation Objective: To maintain the favourable conservation condition of Estuaries in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Habitat Area	The permanent habitat area is stable or increasing, subject to natural processes	No impact pathways identified due to lack of S-P-R link with potential to cause significant effect owing to the location of, and the distance between the mapped distribution of this QI and the Proposed Development Site.
Community Extent	Maintain the extent of the *Mytilus edulis*-dominated community, subject to natural processes	
Community structure: *Mytilus edulis* density	Conserve the high quality of the *Mytilus edulis*-dominated community, subject to natural processes	
Community Distribution	Conserve the following community types in a natural condition: Intertidal estuarine sandy mud community complex; Subtidal estuarine fine sand with *Bathyporeia spp.* community complex; Sand and mixed sediment with polychaetes and crustaceans community complex; Coarse sediment community complex	

Attribute	Target	S-P-R connection / potential impacts
1240 Mudflats and sandflats not covered by seawater at low tide: Conservation Objective: To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Habitat Area	The permanent habitat area is stable or increasing, subject to natural processes	No: while a hydrological connection exists via the Blackwater River, there is a significant intervening distance of c.53km (as the crow flies) which is deemed to provide sufficient buffering and dilution capacity
Community Extent	Maintain the extent of the *Zostera* and *Mytilus edulis*-dominated community, subject to natural processes	
Community structure: *Zostera* shoot density	Conserve the high quality of the Zostera-dominated community, subject to natural processes	
Community structure: *Mytilus edulis* density	Conserve the high quality of the *Mytilus edulis*-dominated community, subject to natural processes	
Community distribution	The following community types should be conserved in a natural condition: Intertidal estuarine sandy mud community complex and Sand and mixed sediment with polychaetes and crustaceans community complex.	
1220 Perennial vegetation of stony banks: Conservation Objective: To maintain the favourable conservation condition of Perennial vegetation of stony banks in Blackwater River SAC, which is defined by the following list of attributes and targets:		
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession	No impact pathways identified due to lack of S-P-R link with potential to cause significant effect owing to the location of, and the distance between the mapped distribution of this QI and the Proposed Development Site.
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes	
Physical structure: functionality and sediment supply	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	
Vegetation structure: zonation	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
Vegetation composition: typical species and subcommunities	Maintain the typical vegetated shingle flora including the range of subcommunities within the different zones	
Vegetation composition: negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover	
1310 *Salicornia* and other annuals colonizing mud and sand: Conservation Objective: To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession	No impact pathways identified due to lack of S-P-R link with potential to cause significant effect
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes	

Attribute	Target	S-P-R connection / potential impacts
Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	owing to the location of, and the distance between the mapped distribution of this QI and the Proposed Development Site.
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regimes	Maintain natural tidal regime	
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
Vegetation structure: vegetation height	Maintain structural variation within sward	
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
Vegetation composition: typical species and sub-communities	Maintain the presence of species-poor communities with typical species listed in saltmarsh Monitoring Project (McCorry and Ryle, 2009)	
Vegetation structure: negative indicator species: *Spartina anglica*	No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1%	
1330 Atlantic Salt Meadows: Conservation Objective: To restore the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Kinsalebeg - 2.77ha.	No impact pathways identified due to lack of S-P-R link with potential to cause significant effect owing to the location of, and the distance between the mapped distribution of this QI and the Proposed Development Site.
Habitat distribution	No decline or change in habitat distribution, subject to natural processes	
Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regime	Maintain natural tidal regime	
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
Vegetation structure: vegetation height	Maintain structural variation within sward	
Vegetation structure: vegetation cover	Maintain more than 90% of the saltmarsh area vegetated	
Vegetation composition: typical species and sub communities	Maintain range of sub- communities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	

Attribute	Target	S-P-R connection / potential impacts
Vegetation structure: negative indicator species - *Spartina anglica*	No significant expansion of common cordgrass (Spartina anglica), with an annual spread of less than 1%	
1355 Otter*:* Conservation Objective: To restore the favourable conservation condition of Otter in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Distribution	No significant decline	Yes: All of the Blackwater river is considered an important habitat for Otter in southern Ireland (Smiddy, 2016), as such, a hydrological connection exists between the Proposed Development and the distribution of this QI species within the Blackwater River SAC.
Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 103ha above high-water mark (HWM); 1165.7ha along riverbanks/ around ponds	
Extent of marine habitat	No significant decline. Area mapped and calculated as 647.2ha	
Extent of freshwater habitat (river)	No significant decline. Length mapped and calculated as 599.54km	
Extent of freshwater habitat (lake)	No significant decline. Area mapped and calculated as 25.06ha	
Couching sites and holts	No significant decline	
Fish biomass available	Fish biomass available	
Barriers to connectivity	No significant increase	
1410 Mediterranean Salt Meadows: Conservation Objective: To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Kinsalebeg: 1.36ha.	No impact pathways identified due to lack of S-P-R link with potential to cause significant effect owing to the location of, and the distance between the mapped distribution of this QI and the Proposed Development Site.
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes	
Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regime	Maintain natural tidal regime	
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	
Vegetation structure: vegetation height	Maintain structural variation within sward	
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
Vegetation composition: typical species	Maintain range of sub- communities with typical species listed in Saltmarsh Monitoring Project	

Attribute	Target	S-P-R connection / potential impacts
Vegetation structure: negative indicator species - *Spartina anglica*	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%	
1421 Killarney Fern*:* Conservation Objective: To maintain the favourable conservation condition of Killarney Fern in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Distribution	No decline. Two locations known within the SAC	No impact pathways identified due to lack of S-P-R link with potential to cause significant effect owing to the location of, and the distance between the mapped distribution of this QI and the Proposed Development Site.
Population size	Maintain size and extent of existing colonies, including sporophyte frond counts and number of gametophyte patches	
Habitat extent	No loss of suitable habitat, such as shaded rock crevices, caves, or gullies in, or near to, known colonies. No loss of woodland canopy at or near to known locations	
Hydrological conditions: visible water	Maintain hydrological conditions at the locations so that all colonies are in dripping or damp seeping habitats, and water is visible at all locations	
Hydrological conditions: humidity	No increase. Presence of desiccated sporophyte fronds or gametophyte mats indicates conditions are unsuitable	
Light levels: shading	No changes due to anthropogenic impacts	
Invasive species	Absent or under control	
3260 Water courses of plain to montane levels with the *Ranunculion fluitantis and Callitricho-Batrachion* vegetation*:* Conservation Objective: To maintain the favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Habitat distribution	No decline, subject to natural processes	Yes: Floating river vegetation has been noted as being found along much of the freshwater stretches within the Blackwater River SAC (NPWS, 2016). Therefore, there is a potential hydrological connection between the Proposed Development and the distribution of this QI habitat within the Blackwater SAC.
Habitat area	Area stable or increasing, subject to natural processes	
Hydrological regime: river flow	Maintain appropriate hydrological regimes	
Hydrological regime: tidal influence	Maintain natural tidal regime	
Substratum composition: particle size range	The substratum should be dominated by the particle size ranges, appropriate to the habitat sub-type (typically sands, gravels and cobbles)	
Water quality: nutrients	The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition	
Vegetation composition: typical species	Typical species of the relevant habitat sub-type should be present and in good condition	
Floodplain connectivity: area	The area of active floodplain at and upstream of the habitat should be maintained	
91A0 Old sessile oak with Ilex and Blechnum in the British isles*:*		

Attribute	Target	S-P-R connection / potential impacts
Conservation Objective: To restore the favourable conservation condition of Old sessile oak woods with Ilex and Blechnum in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Habitat area	Area stable or increasing, subject to natural processes, at least 263.7ha for sub-sites surveyed	No: This is a terrestrial habitat with no pathway between the Proposed Development and this QI habitat.
Habitat distribution	No decline	
Woodland size	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	
Woodland structure: cover and height	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi- mature trees and shrubs; and well-developed herb layer	
Woodland structure: community diversity and extent	Maintain diversity and extent of community types	
Woodland structure: natural regeneration	Seedlings, saplings, and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	
Woodland structure: dead wood	At least 30m³/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter	
Woodland structure: veteran trees	No decline	
Woodland structure: indicators of local distinctiveness	No decline	
Vegetation composition: native tree cover	No decline. Native tree cover not less than 95%	
Vegetation composition: typical species	A variety of typical native species present, depending on woodland type, including sessile oak (*Quercus petraea*) and birch (*Betula pubescens*)	
Vegetation composition: negative indicator species	Negative indicator species, particularly non-native invasive species, absent or under control	
91E0 Alluvial forests with *Alnus glutinosa and Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*): Conservation Objective: To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:		
Habitat area	Area stable or increasing, subject to natural processes, at least 19.2ha for sites surveyed.	Yes: This is a terrestrial habitat with alluvial influence, therefore adopting a precautionary approach, there is a potential hydrological
Habitat distribution	No decline	
Woodland size	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	

Attribute	Target	S-P-R connection / potential impacts
Woodland structure: cover and height	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi- mature trees and shrubs; and well-developed herb layer	connection between the Proposed Development and the distribution of this QI habitat within the Blackwater SAC.
Woodland structure: community diversity and extent	Maintain diversity and extent of community types	
Woodland structure: natural regeneration	Seedlings, saplings, and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	
Hydrological regime: flooding depth/height of water table	Appropriate hydrological regime necessary for maintenance of alluvial vegetation	
Woodland structure: dead wood	At least 30m³/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder)	
Woodland structure: veteran trees	No decline	
Woodland structure: indicators of local distinctiveness	No decline	
Vegetation composition: native tree cover	No decline. Native tree cover not less than 95%	
Vegetation composition: typical species	A variety of typical native species present, depending on woodland type, including alder (Alnus glutinosa), willows (*Salix spp*) and, locally, oak (*Quercus robur*) and ash (*Fraxinus excelsior*)	
Vegetation composition: negative indicator species	Negative indicator species, particularly non-native invasive species, absent or under control	
91J0 Yew Woods (*Taxus baccata*) of the British Isles*:* Conservation Objective: The status of *Taxus baccata* woods of the British Isles as a qualifying Annex I habitat for the Blackwater River (Cork/Waterford) SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this habitat. No S-P-R links from the Site to this QI habitat.		

APPENDIX II – LICENCED WASTE FACILITIES

Permitted/Licenced Waste Collection Facilities				
Permit Ref. Number	Name of Permit Holder	Location of Site	Soil and Stone	C&D Waste
WCP-CK-10-611-04	Country Clean Recycling	Ballygowan, Mallow, Co. Cork	X	X
NWCPO-10-04783-03	O'Brien Skip Hire Limited	Ballyrussell, Midleton, Cork	X	X
NWCPO-10-04759-03	Midleton Skip Hire Limited	Knockgriffin, Midleton, Cork	X	X
NWCPO-10-04783-05	Wiser Ltd	Unit 6, Rosehill Industrial Estate, Midleton, Cork	X	X
NWCPO-10-04758-05	Cork Recycling co. Ltd	Leghenamore Togher, Cork	X	X

Permitted/Licenced Waste Facilities				
Permit Ref. Number	Name of Permit Holder	Location of Site	Soil and Stone	C&D Waste
WFP-CK-22-0224-01	Midleton Skip Hire Ltd	Knockgriffin, Midleton, Cork	X	X
WFP-CK-0094-04	O'Brien Skip Hire Limited	Ballyrussell, Midleton, Cork	X	X
WFP-CK-15-0154-01	Roadstone Limited	Ballynabointra and Ballyvodock West, Carrigtwohill, Cork	X	X

Permitted/Licenced Waste Facilities				
Permit Ref. Number	Name of Permit Holder	Location of Site	Soil and Stone	C&D Waste
WFP-CC-26-2019	Redfox Recycling	John F. Connolly Road, Churchfield Industrial Estate, Cork	X	X
WFP-CK-13-0126-03	O'Flynn Construction Company, Unlimited Company	Knockanemore, Ovens, Cork	X	

APPENDIX III – BLACKWATER RIVER SAC CONSERVATION OBJECTIVES MAPPED RANGES FOR QI/SCI GROUPS.

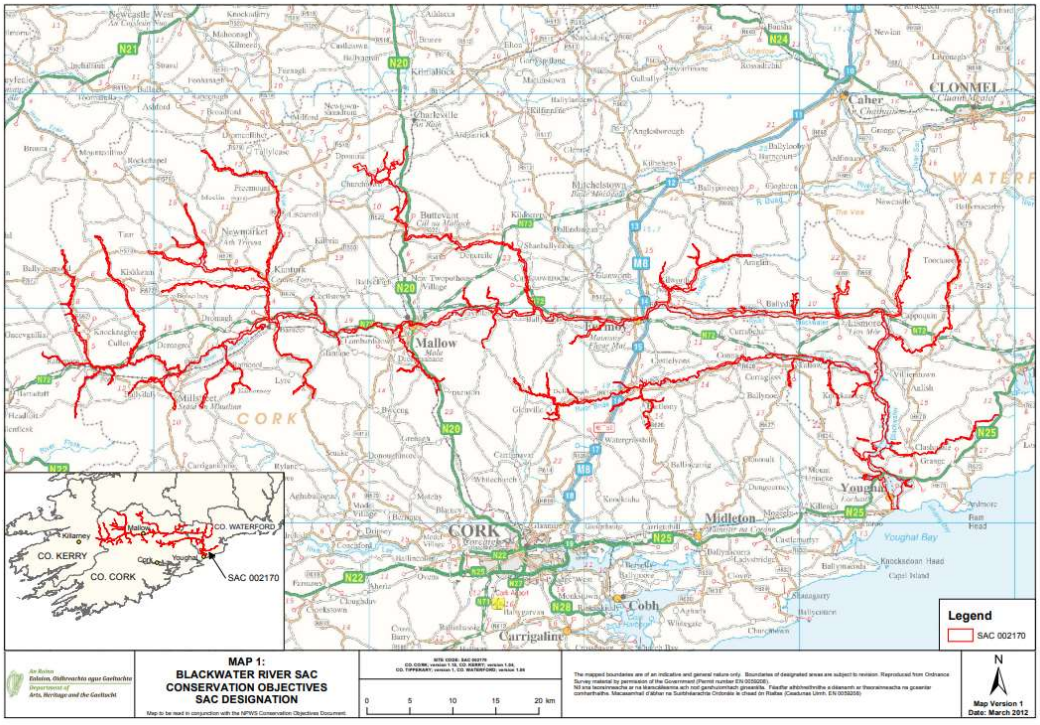

FIGURE 9. BLACKWATER RIVER SAC CONSERVATION OBJECTIVES (SAC DESIGNATION)(MAP 1 EXTRACTED FROM THE CONSERVATION OBJECTIVES DOCUMENT).

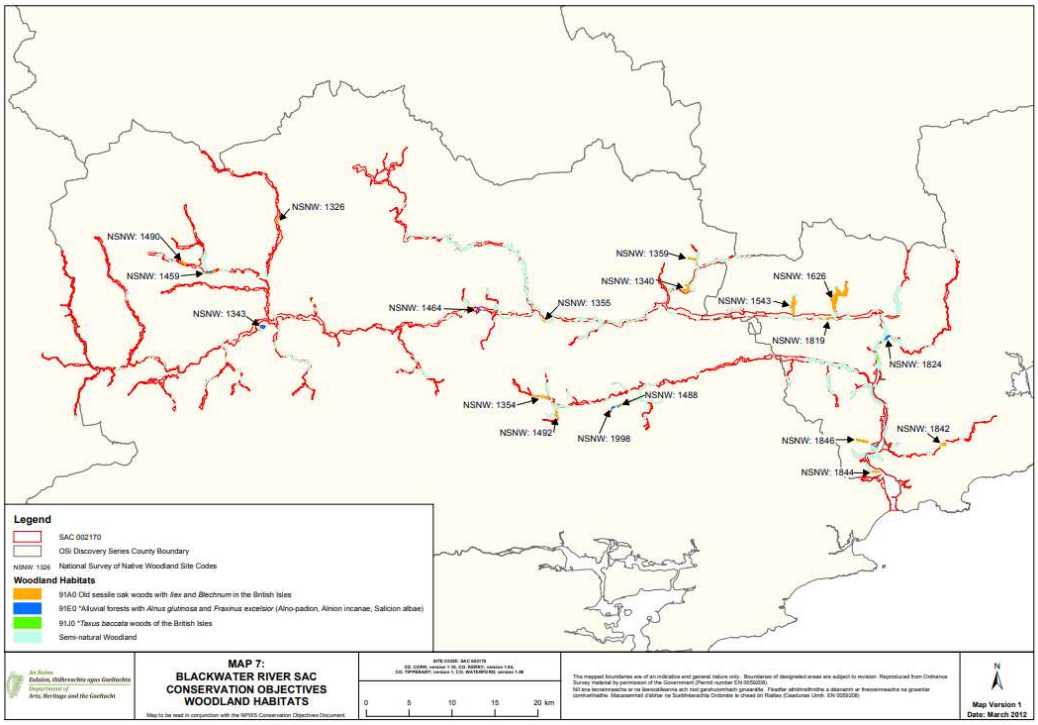

FIGURE 10. BLACKWATER RIVER SAC CONSERVATION OBJECTIVES WOODLAND HABITATS (MAP 7 EXTRACTED FROM THE CONSERVATION OBJECTIVES DOCUMENT).

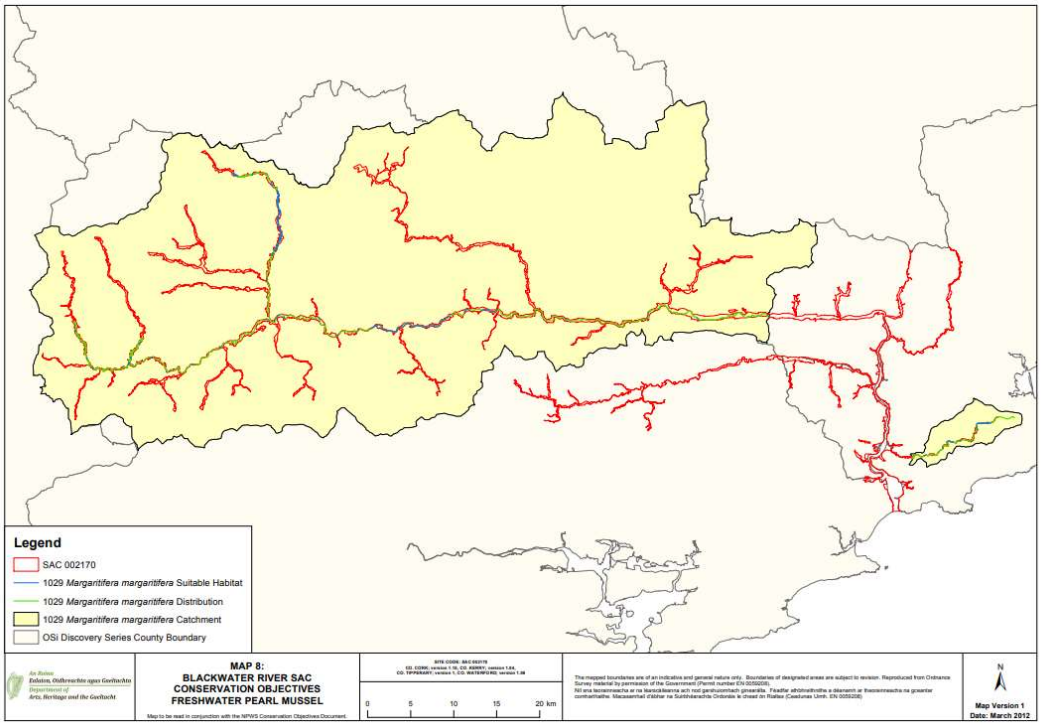

FIGURE 11. BLACKWATER RIVER SAC CONSERVATION OBJECTIVES FRESHWATER PEARL MUSSEL DATA (MAP 8 EXTRACTED FROM THE CONSERVATION OBJECTIVES DOCUMENT).

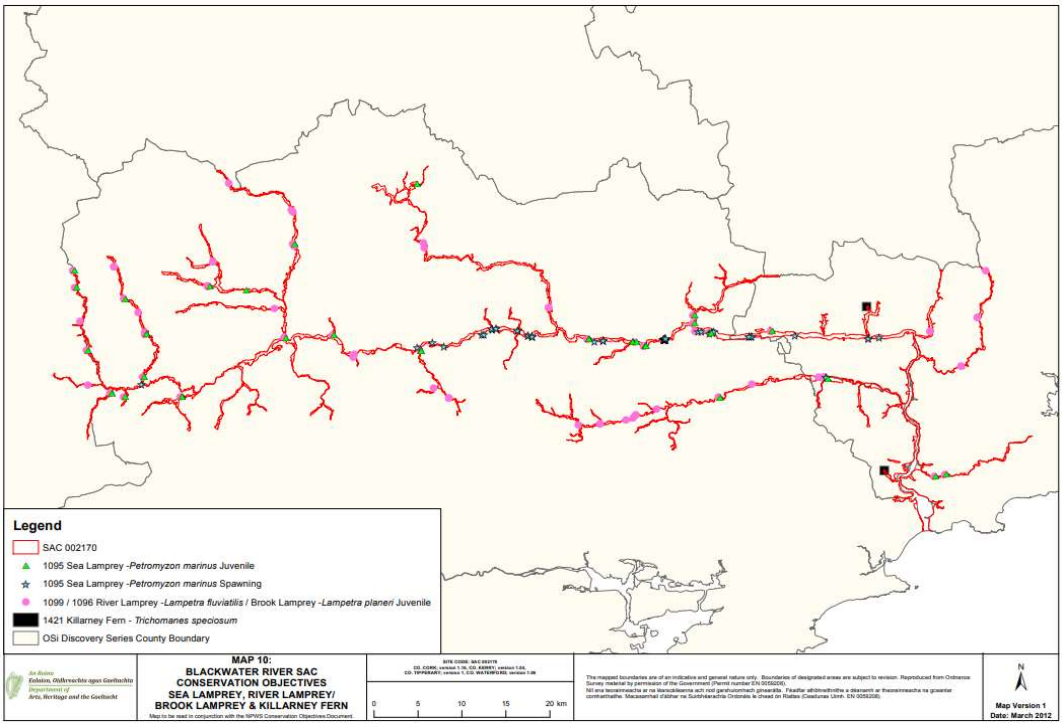

FIGURE 12. BLACKWATER RIVER SAC CONSERVATION OBJECTIVES SEA LAMPREY, RIVER LAMPREY, BROOK LAMPREY AND KILLARNEY FERN (MAP 10 EXTRACTED FROM THE CONSERVATION OBJECTIVES DOCUMENT).

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