



Limerick City & County Council

EU's Habitats Directive 92/43/EEC Article 6(3) Planning and Development Act 2000 (as amended)

Proposed Development: N21 Newcastle West Road Scheme

Proposal for the development of:

Roads

- 7.5km of Type 2 Divided Road (Protected Road), bypassing Newcastle West, with start and terminal roundabout junctions with the existing N21 and an intermediate roundabout junction with the R521 at Churchtown;
- 1.1km of Single Carriageway Road realignment of the R521; and
- 0.5km of Single Carriageway Local Road realignment.

Junctions

- Three at-grade roundabout type junctions, providing access points at each end of the Proposed Project and an intermediate access at the realigned R521 in Churchtown.

Structures

- Three river bridges (over Arra, Dooally and Daar);
- Seven culverts (including two flood relief culverts);
- Three underbridges;
- Five underpasses; and
- Four Cycle Subways.

Active Travel Provisions

- 7.5km of shared use two-way active travel track;
- 1km of pedestrian footway.

Other Works

- Drainage works in accordance with sustainable drainage design principles and guidance. The treatment of surface water run-off prior to outfall discharge, spill containment measures and attenuation treatment facilities;
- Alterations to high voltage 38kV electricity line;
- Diversion of existing services and utilities including overhead and underground electricity lines, watermains and communication cables;
- The earthworks for the Proposed Project will involve the excavation of approximately 207,000 m³ of soil. This material will undergo limited processing for potential reuse as construction fill, while unsuitable or soft material will be re-deposited on-site for use in landscaping works or in a dedicated material deposition area;

- Due to the flat, low-lying topography of the site and the presence of a high groundwater table, achieving an earthworks balance within the lands to be acquired is not feasible. As a result, the importation of approximately 906,000 m³ of suitable fill material will be required to complete the earthworks for the Proposed Project;
- Construction of farm access tracks with accommodation works ancillary to the Proposed Project;
- Provision of landscape planting, signage, lighting and other works ancillary to the construction and operation of the Proposed Project; and
- The acquisition of 1 dwelling house for the construction of the Proposed Project.

Location: Commencing at the existing N21 carriageway at Killaghteen, west of Newcastle West, and extending north of Newcastle West through Killaghteen, Dooally, Churchtown and tying into the existing N21 carriageway at Ballyfraley, east of Newcastle West.

Appropriate Assessment (AA) Screening Determination

Pursuant to the requirements of the above, Limerick City & County Council is proposing a 7.5km long Transport Infrastructure Ireland (TII) Type 2 Divided Road along the N21 Limerick to Tralee Road bypassing Newcastle West in County Limerick.

Having regard to Article 6 of the Habitats Directive 92/43/EEC, Part XAB of the Planning and Development Acts 2000 (as amended), and the Department of Housing, Local Government and Heritage's 2009 guidance document "*Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*", screening of the development for Appropriate Assessment was carried out by Jacobs Engineering on behalf of Limerick City and County Council for the proposed N21 Newcastle West Road Scheme.

Following this assessment, Limerick City and County Council, as the Competent Authority for AA screening, has determined that potential pathways for significant effects on European sites cannot be ruled out. Therefore, a full Appropriate Assessment is required to assess whether the proposed scheme could adversely affect the integrity of the following Natura 2000 sites, having regard to their conservation objectives:

- Lower River Shannon SAC
- Barrigone SAC
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
- River Shannon and River Fergus Estuaries SPA

For Natura Impact Statements, An Coimisiún Pleanála is the Competent Authority and will carry out a Stage 2 Appropriate Assessment of the proposed scheme. To support this, a Natura Impact Statement (NIS) will be prepared and submitted as part of the statutory planning process.

The rationale for this determination is detailed in the AA Screening Report accompanying this statement.

Order: That Limerick City & County Council as the competent authority having considered the AA Screening Report prepared by Jacobs Engineering makes a determination that, when considered either alone or in combination with other plans or projects, a Stage 2 Appropriate Assessment will be required to accompany the proposal for the development of the a 7.5km long Transport Infrastructure Ireland (TII) Type 2 Divided Road along the N21 Limerick to Tralee Road bypassing Newcastle West in County Limerick.



PL

Pat Daly

Director General

Date: 23/1/26



Our Ref: 0140_07_00013

14th January 2026

MR PAT DALY
DIRECTOR GENERAL

**RE: N21 NEWCASTLE WEST ROAD SCHEME
APPROPRIATE ASSESSMENT SCREENING DETERMINATION**

Dear Director General

The N21 Newcastle West Road Scheme proposes 7.5km of Type 2 Divided Road (Protected Road), bypassing Newcastle West, with start and terminal roundabout junctions with the existing N21 and an intermediate roundabout junction with the R521 at Churchtown and 1.1km of Single Carriageway Road realignment of the R521 and other associated works as described in the enclosed documentation.

Having reviewed and considered information on the proposed project, Jacobs Engineering has undertaken an Appropriate Assessment (AA) Screening on behalf of Limerick City and County Council and enclosed is a copy of the report, report reference N21-JAC-EIA-NWP-RP-P3-0002 D03.

Based on the objective scientific information in the attached report, significant effects on a European site cannot be ruled out. Consequently, Limerick City and County Council, as the Competent Authority for AA screening, is in a position to determine that an Appropriate Assessment Stage 2 is required in respect of the proposed project.

Therefore, a full Stage 2 Appropriate Assessment is required to assess whether the proposed scheme could adversely affect the integrity of Natura 2000 sites, having regard to their conservation objectives.

For Natura Impact Statements, An Coimisiún Pleanála is the Competent Authority and will carry out a Stage 2 Appropriate Assessment of the proposed scheme. To support this, a Natura Impact Statement (NIS) will be prepared and submitted as part of the statutory planning process.



Telephone: 061 - 951000

Mid West National Road Design Office is a collaboration of
Limerick City & County Council and Tipperary County
Council.



Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council



Comhairle Contae Thíobraid Árann
Tipperary County Council



e-mail: info@midwestroads.ie

Tionscaimh pártnéireachta is ea Oifig Dearadh Bóthar Náisiúnta an Mheáin Iarthair
ídir Chomhairle Cathrach & Contae Luimnigh agus Chomhairle Contae Thíobraid
Árann.

Continued from previous page

Our Ref: 0140_07_00013

14th January 2026

MR PAT DALY
DIRECTOR GENERAL

**RE: N21 NEWCASTLE WEST ROAD PROJECT
APPROPRIATE ASSESSMENT SCREENING DETERMINATION**

I attach an Appropriate Assessment Screening Determination for signing and await your approval.

Notification of this determination shall be made available to the public on the N21 Newcastle West Road Scheme project website (www.N21newcastlewest.ie) and on the Limerick City and County Council website in accordance with the regulations.

SIGNED: D. Clarke
DEIRDRE CLARKE
SENIOR EXECUTIVE ENGINEER

To/ Pat Daly
Director General

I agree with the above recommendation.

RECOMMENDED: T. Fitzgerald
TIM FITZGERALD
SENIOR ENGINEER

ENDORSED: P. Liddy
PATRICIA LIDDY
DIRECTOR OF SERVICES
TRANSPORTATION, MOBILITY AND PUBLIC REALM

APPROVED: P. Daly

PAT DALY
DIRECTOR GENERAL

Encl.



Jacobs

N21 Newcastle West Road Scheme APPROPRIATE ASSESSMENT (AA) SCREENING REPORT

N21-JAC-EIA-NWP-RP-P3-0002| D03

October 2025

Limerick City and County Council

N21 Newcastle West Road Scheme

Project No: 32110800
Document Title: APPROPRIATE ASSESSMENT (AA) SCREENING REPORT
Document No.: N21-JAC-EIA-NWP-RP-P3-0002
Revision: D03
Document Status: Final
Date: October 2025
Client Name: Limerick City and County Council
Client No: L/18/16498
Project Manager: Kevin Cosgrove
Author: Philip Brown/Fran Tobin
File Name: N21 NCW_Appropriate Assessment Screening Report. FINAL

Jacobs Engineering Ireland Limited T +353 (0)1 269 5666
Termini Building www.jacobs.com
2nd Floor
3 Arkle Road
Sandyford
Dublin D18 C9C5
Ireland

© Copyright 2025 Jacobs Engineering Ireland Limited. All rights reserved. The content and information contained in this document are the property of the Jacobs group of companies ("Jacobs Group"). Publication, distribution, or reproduction of this document in whole or in part without the written permission of Jacobs Group constitutes an infringement of copyright. Jacobs, the Jacobs logo, and all other Jacobs Group trademarks are the property of Jacobs Group.

NOTICE: This document has been prepared exclusively for the use and benefit of Jacobs Group client. Jacobs Group accepts no liability or responsibility for any use or reliance upon this document by any third party.

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
D01	May 2025	Client Issue	PB	FT	MP	KC
D02	July 2025	Addressing RDO Comments and Updates	FT	GQ	MP	KC
D03	October 2025	Final Version	FT	GQ	MP	KC

Contents

Glossary of Terminology, Abbreviations and Acronyms	iv
Executive Summary	vi
1. Introduction.....	1
1.1 Background	1
1.2 Purpose and Structure of this Report	1
1.3 Legislative Context for Appropriate Assessment.....	1
1.4 Case Law	3
1.5 Stages in Appropriate Assessment	3
1.6 Statement of Authority.....	4
2. Description of Proposed Project.....	5
2.1 Project Overview and Objectives.....	5
2.2 Temporary Works.....	5
2.3 Permanent Works	6
3. Methodology.....	7
3.1 Guidance Documents	7
3.2 Screening Methodology	7
3.3 Source-Pathway-Receptor Model and Zone of Influence.....	7
3.4 Desk-Based Data Review.....	8
3.5 Site Surveys	9
3.5.1 Habitat Surveys.....	9
3.5.2 Marsh Fritillary	9
3.5.3 Habitat Suitability Surveys – Aquatic Species.....	9
3.5.4 eDNA Sampling: Aquatic Species	10
3.5.5 Otter Surveys	10
3.5.6 Breeding Bird Surveys	10
3.5.7 Wintering Bird Surveys.....	10
4. Identification of Relevant European Sites	11
4.1 Potential Effect Pathways from Proposed Project	11
4.2 European Sites within the Zol of the Proposed Project	12
4.3 Other European Sites.....	15
5. Baseline Characterisation	16
5.1 General Description of Habitats (including Annex I)	16
5.2 European Sites	16
5.3 Qualifying Interest species	16
5.3.1 Otter (Lower River Shannon SAC)	16
5.3.2 Atlantic Salmon (Lower River Shannon SAC)	17
5.3.3 Sea, Brook and River Lamprey (Lower River Shannon SAC)	17
5.3.4 Hen Harrier (Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA)	17

5.3.5	Breeding and Wintering Bird Species (River Shannon and River Fergus Estuaries SPA).....	18
5.3.6	Marsh Fritillary (Barrigone SAC)	18
5.4	Aquatic Environment (Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA)	19
5.5	Invasive Non-native Species.....	19
6.	Assessment of Likely Significant Effects (LSEs).....	21
6.1	Screening Exercise.....	21
6.2	Determination of Likely Significant Effects	31
7.	Assessment of In-Combination Effects	33
7.1	Conclusions of In-combination Effects	40
8.	Screening Statement and Conclusion.....	41
9.	References	43

Appendix A. Figures

Glossary of Terminology, Abbreviations and Acronyms

Term, Abbreviation or Acronym	Description
AA	Appropriate Assessment
AESI	Adverse Effect on Site Integrity
CBS	Common Bird Census
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CO	Conservation Objectives
csAC	Candidate Special Area of Conservation
DoT	Department of Transport
DHLGH	Department Of Housing, Local Government and Heritage
DoEHLG	Department Of Environment, Heritage and Local Government
EC	European Commission
EcIA	Ecological Impact Assessment
ECJ	European Court of Justice
eDNA	Environmental DNA
EEA	European Environment Agency
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
GPS	Global Positioning System
HRA	Habitats Regulations Appraisals/Assessment
IAS	Invasive Alien Species
IFI	Inland Fisheries Ireland
IROPI	Imperative Reasons of Overriding Public Interest
LCCC	Limerick City and County Council
LSE	Likely Significant Effect
NBDC	National Biodiversity Data Centre
NIS	Natura Impact Statement
NPAD	National Planning Application Database
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
OPR	Office of The Public Regulator
QI	Qualifying Interest
SAC	Special Area of Conservation
SPA	Special Protection Area
SWMP	Surface Water Management Plan
TII	Transport Infrastructure Ireland

Term, Abbreviation or Acronym	Description
WFD	Water Framework Directive
Zol	Zone of Influence

Executive Summary

Limerick City and County Council (LCCC), in collaboration with Transport Infrastructure Ireland (TII) and the Department of Transport (DoT) are seeking approval for the N21 Newcastle West Road Scheme (hereafter referred to as the Proposed Project) under Section 51 of the Roads Act, 1993 (as amended).

The Proposed Project will provide a bypass of Newcastle West to the north of the town and is approximately 7.5 km in length. The bypass will comprise a Type 2 Divided Road cross section. This type of road has two traffic lanes in each direction separated by a narrow central reservation (Median) with a vehicle restraint barrier. There will be 0.5m wide hard strips on the outer edges of the carriageway, but no hard shoulders. A dedicated shared use active travel facility, with a defined separation distance, in accordance with TII Design standards, is also included as part of the Proposed Project.

The Proposed Project includes for a realignment of the R521 which connects to the Proposed Project. The purpose of the realignment is to provide consistency of cross-section, easing of existing bends and improve visibility. Active travel facilities will also be provided along the realigned R521 into Newcastle West. At-grade roundabouts are proposed at each tie in with the existing N21 and at the interface with the R521.

The location of the Proposed Project is presented in Figure 1 in Appendix A of this report.

This Appropriate Assessment (AA) Screening Report has been prepared as part of the planning application for the Proposed Project and approval is also sought by An Coimisiún Pleanála in accordance with the provisions of Part XAB of the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended).

The purpose of this AA Screening Report is to identify whether the Proposed Project, either acting individually or in-combination with other plans or projects, would result in Likely Significant Effects (LSEs) on the Qualifying Interests (QI) of any European site. All potential impact pathways from activities associated with the Proposed Project on QI features of European sites were considered.

Following this assessment, the following potential impact pathways on European sites could not be discounted for LSE:

- Lower River Shannon Special Area of Conservation (SAC)
 - Mortality:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
 - Habitat degradation – changes in water quality:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
 - Habitat degradation – changes in hydrology/hydrogeology:
 - Sea lamprey

- Brook lamprey
- River lamprey
- Atlantic salmon
- Otter
- Physical disturbance:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
- Barrigone SAC
 - Direct habitat loss:
 - Marsh fritillary
 - Mortality:
 - Marsh fritillary
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle Special Protection Area (SPA)
 - Mortality:
 - Hen harrier
 - Physical disturbance:
 - Hen harrier
- River Shannon and River Fergus Estuaries SPA
 - Habitat degradation – changes in water quality:
 - All QIs

As such, an AA is required to determine whether the Proposed Project will adversely affect the integrity of the Lower River Shannon SAC, Barrigone SAC, Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, and River Shannon and River Fergus Estuaries SPA in view of their Conservation Objectives. This will be documented in a Natura Impact Statement (NIS) which will be submitted at planning to enable the Competent Authority to undertake an AA in respect of the Proposed Project.

For those European sites identified as not requiring an AA, this screening concludes there is no potential for LSE on these sites due to impacts from the Proposed Project in-combination with other plans or projects.

1. Introduction

1.1 Background

Limerick City and County Council (LCCC), in collaboration with Transport Infrastructure Ireland (TII) and the Department of Transport (DoT) are seeking approval for the N21 Newcastle West Road Scheme (hereafter referred to as the Proposed Project) under Section 51 of the Roads Act, 1993 (as amended).

The Proposed Project will provide 7.5km TII Type 2 Divided Road along the N21 Limerick to Tralee Road bypassing Newcastle West in County Limerick.

The Proposed Project is set mainly within agricultural land, but also in proximity to rural residential properties, commercial and agricultural businesses. The Proposed Project comprises of several river crossings and underpasses and / or overbridges for existing infrastructure (i.e. regional and local roads) and private land accesses.

The extent of the Proposed Project is presented in Figure 1, Appendix A of this report.

1.2 Purpose and Structure of this Report

Regulation 42(1) of the European Communities (Birds and Habitats) Regulations 2011 requires all public authorities (which includes local authorities including LCCC) who wish to undertake any project to first carry out an Appropriate Assessment (AA) Screening. In the context of Article 6(3) of the Habitats Directive and Section 177U(1) of Planning and Development Act 2000 (as amended), An Coimisiún Pleanála as the competent authority must also carry out Screening for AA of the Proposed Project to assess whether, on the basis of objective scientific information, the Proposed Project, individually or in-combination with other plans or projects, is likely to have a significant effect on the conservation objectives (CO) of any European sites. This report presents the information required for LCCC, and An Coimisiún Pleanála as the competent authority, to undertake Screening for AA for the Proposed Project.

The structure of the report is as follows:

- **Section 1:** Introduction (including legislative context and the authors experience).
- **Section 2:** Description of Proposed Project
- **Section 3:** Methodology
- **Section 4:** Identification of Relevant European sites
- **Section 5:** Baseline Characterisation
- **Section 6:** Assessment of Likely Significant Effects.
- **Section 7:** Assessment of In-combination Effects.
- **Section 8:** Screening Statement and Conclusion
- **Section 9:** References
- **Appendix A:** Figure 1

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

1.3 Legislative Context for Appropriate Assessment

Habitats and species of European importance are provided legal protection under Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (hereafter referred to as the Habitats

Directive) and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (hereafter referred to as the Birds Directive). The Habitats Directive protects habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as the Natura 2000 network (hereafter referred to as European sites¹). European sites comprise Special Areas of Conservation (SACs²) and Special Protection Areas (SPAs).

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

Article 6(3) establishes the requirement for AA:

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

Article 6(4) states:

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

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

Part 5 of the Bird and Natural Habitat Regulations 2011, Article 42.(1) establishes the requirement for AA:

'A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the Conservation Objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European Site'.

Section 177U(1) states that:

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

Where likely significant effects upon a European site are predicted, or cannot be ruled out, it is the responsibility of the Competent Authority to undertake an AA under Article 6(3) of the Habitats Directive, informed through an Natura

¹ The term Natura 2000 network was replaced by 'European Site' under the EU (Environmental Impact Assessment and Habitats) Regulations 2011 S.I. No. 473 of 2011.

² Candidate SAC (cSAC) are afforded the same protection as SACs. The process of making cSAC into SACs by means of Statutory instrument has begun and while the process is ongoing the term SAC will be used to conform with nomenclature used in the National Parks and Wildlife Services (NPWS) database.

Impact Statement (NIS), to determine whether or not the proposed plan in combination with any other plan or project would adversely affect the integrity of a European site in light of its COs.

Section 177T(1) states that:

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

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

Section 177T(2) states that:

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

1.4 Case Law

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

1.5 Stages in Appropriate Assessment

The AA process comprises a number of stages where the outcome at each successive stage determines whether a further stage in the process is required.

The purpose of Screening (Stage 1) is to identify whether, activities associated with plans or projects³, either acting individually or in-combination with other plans or projects result in likely significant effects (LSEs) on any European sites. All likely significant cumulative effects of plans or projects and the Qualifying Interests (QI) of European sites must be considered. This includes potential effects on mobile species, notably birds, mammals, invertebrates and migratory fish that may use functionally linked land outside the boundaries of European Sites.

At Screening, the burden of evidence is to show, on the basis of objective information, and beyond reasonable scientific doubt, that the proposed plan or project will have no LSEs on a European site. If LSEs cannot be excluded, or there is uncertainty, it would trigger the need for AA (Stage 2). An overview of the AA process is outlined below:

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

Following AA, including mitigation proposals, if AESI remain, or uncertainty remains and the project/plan is to be progressed, an Assessment of Alternative Solutions is required under the provisions of Article 6(4) of the Habitats

³ For the purposes of this assessment the Proposed Project is considered a type of project.

Directive. This process examines the alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. If no alternatives exist, or all alternatives would result in adverse effects on the integrity of a European site, then either the process moves to the next stage, or the project is abandoned. Where an Assessment of Alternative Solutions fails to identify any suitable alternatives, then for a project or plan to be progressed it must meet the requirements of Imperative Reasons of Overriding Public Interest (IROPI). In this case the provisions of Article 6(3) cannot be met and therefore, the provisions of Article 6(4) are used. If, in light of an assessment of IROPI, it is deemed that the project or plan should proceed, compensatory measures must be secured to maintain the coherence of the European Site network in the face of AESI.

1.6 Statement of Authority

This report has been prepared by Philip Brown and checked and reviewed by Fran Tobin and Matt Pannell.

Philip Brown is an Ecologist and holds an MSc in Wildlife Conservation from the University of Chester. Philip has 4 years consultancy experience ranging from small domestic projects to large infrastructure projects in both the UK and Ireland. Philip has worked on wastewater, water, energy, urban infrastructure and highways and a variety of other projects as a graduate Ecologist.

Fran Tobin is a Chartered Ecologist and has over 10 years' experience in consultancy working on projects both in the UK and Ireland. Before this, Fran was involved in badger surveys and vaccination, as well as wildlife management and monitoring, for government agencies in England and Wales. Fran has worked on major infrastructure projects, particularly road schemes, as well as flood prevention schemes, bridge replacements and cycle networks. Fran's key skills and expertise lie in Ecological Impact Assessment (EIA) and Habitats Regulations Appraisals/Assessment (HRA).

Matt Pannell is a Chartered Environmentalist and has over 20 years of experience of supporting major infrastructure projects in ecological assessment and construction phases. Matt's experience includes infrastructure projects for trunk roads, flood defence schemes and renewable energy. Matt co-ordinates the delivery of a team of 30+ ecologists across a wide range of projects including many projects that interact with European sites designated for Nature Conservation.

2. Description of Proposed Project

2.1 Project Overview and Objectives

The Proposed Project is situated along the N21 Limerick to Tralee National Primary Route. This section of the N21 National Road forms part of a vital Strategic Corridor Link between the South-West and the Mid-West regions of Ireland. The transport corridor plays a significant role in international connectivity, which in turn increases prosperity to the region, including tourism and exports. Together with the N22 and N23 National Roads, the N21 also provides one of the main accesses from the north-west to the major tourism hub of Killarney.

The N21 forms part of the Comprehensive Road Network of TEN-T. This is a network of multi-modal strategic transport corridors identified to improve the mobility of goods and people throughout the European Union (EU).

In order to meet the future demands of the route in a safe and efficient manner (which are based on traffic forecasting and design standards) and enhance the urban realm environment within the town of Newcastle West, it is proposed to upgrade the existing N21 at Newcastle West by way of a TII Type 2 Divided Road by-pass to the north of the town.

The Proposed Project will provide 7.5 km TII Type 2 Divided Road along the N21 Limerick to Tralee Road bypassing Newcastle West in County Limerick. This type of road has two traffic lanes in each direction separated by a narrow central reservation (Median) with a vehicle restraint barrier. There will be 0.5 m wide hard strips on the outer edges of the carriageway, but no hard shoulders. A dedicated shared use active travel facility, with a defined separation distance, in accordance with TII Design standards is also included as part of the Proposed Project.

The Proposed Project includes for a realignment of the R521 which connects to the Proposed Scheme. The purpose of the realignment is to provide consistency of cross-section, easing of existing bends and improve visibility. Active travel facilities will also be provided along the realigned R521 into Newcastle West. At-grade roundabouts are proposed at each tie in with the existing N21 and at the interface with the R521.

The Proposed Project is considered to be of strategic economic importance at a regional level as it will improve connectivity between the South-West and the Mid-West regions of Ireland, however, the Proposed Project is also considered important at a local level as it will assist with improving road safety, mobility, urban realm, air quality as well as other issues within the town of Newcastle West. The Proposed Project will contribute to the fulfilment of a number of the objectives identified in European and National transport policy documents and in the hierarchy of planning documents from the National Planning Framework (NPF) to Local Area Plan level.

2.2 Temporary Works

Throughout the Construction Phase of the Proposed Project, material will need to be excavated and placed to construct the road alignments using excavators and haulage vehicles. Suitable haul routes have been identified to minimise impacts on stakeholders and the environment of moving the material. Construction activities will also include piling, ground investigations and implementation of utilities. These activities will require utilisation of heavy plant such as piling machines, hydraulic hammers, drill rigs, etc.

Surplus soil material generated through construction activities which is unsuitable for use in construction may be stored in a deposition area within the central area of the Proposed Project. Separate areas will be used for temporary storage of topsoil to be used for landscaping within the boundary of the Proposed Project. Temporary fencing will also be implemented during the Construction Phase.

Construction Compound area will be established within the central area of the Proposed Project, utilising an existing area of agricultural grassland. On completion of the permanent works, the construction compound will be removed, with any stone and/or asphalt areas within the compound excavated.

Construction work within and adjacent to watercourses will be required at locations where bridges and culverts are to be implemented, including such activities as bank alteration and the creation of structures.

2.2.1 Pollution Control Measures

A Surface Water Management Plan (SWMP) will be prepared as part of a wider Outline Construction Environmental Management Plan (CEMP) which will be produced for the Proposed Project. The SWMP will detail controls and management measures for avoiding, preventing, or reducing any significant adverse impacts on the surface water environment during the Construction Phase of the Proposed Project. The measures within the SWMP are required for legal compliance irrespective of whether any European site may or may not be affected.

The SWMP will include the following measures:

- Construction drainage to manage the flow rate, volume and quality of surface water for discharge to the receiving environment would be implemented prior to any construction works taking place. Construction drainage where possible shall be attenuated, treated and discharged at or below green field runoff rates to the surface water environment. Discharge at greenfield runoff will mitigate changes in the volume of water within the system whilst still attenuating water when flow volumes are high.
- Installation of silt fencing in areas prone to increased surface water runoff and along drainage pathways, for example along areas of open cut trenching. These will undergo regular maintenance and checks to ensure silt fencing functions as intended.
- Location of soil storage would be planned as part of the CEMP and should not be located adjacent to or within 20m of watercourses. Where this is not possible to achieve, soil storage mounds should be bunded to prevent sediment laden runoff entering surface water features.
- Re-fuelling of plant where possible shall take place in an appropriate, bunded area, located more than 10m away from any watercourse or land drain. This installation would include an impervious base and, where possible, interceptor drains. Where this is not possible (i.e. for large plant that takes time to disassemble), best management practice will be employed whereby nominated and trained refuelling staff shall be utilised, adequate spill kits provided for the type and amount of fuel being used.
- All valves, hoses and associated equipment would be checked regularly to ensure there are no leaks or the potential for leaks to occur. If leaks are detected, then the equipment will be replaced with equipment that is in suitable condition.
- All concrete pours will be carefully planned in a detailed method statement. Cementitious material will be stopped from entering watercourses, drainage ditches and ponded areas. Care will be taken when transporting cement on site and all vehicles used for this would be suitable for the amount to be carried.

2.2.2 Biosecurity Measures

During works a biosecurity strategy will be undertaken and implemented for the appropriate treatment of invasive, alien species (IAS). The strategy will set out appropriate construction, handling, treatment and disposal procedures to prevent the spread of IAS in line with recognised best practice. The biosecurity measures are required for legal compliance irrespective of whether any European site may or may not be affected.

2.3 Permanent Works

Permanent works include the creation of the new road and associated access routes, installation of fencing, safety barriers, and road lighting. Structures such as culverts and bridges are planned to be incorporated along the Proposed Project at locations where the alignment crosses over watercourses.

The Proposed Project includes the management of surface water runoff and is being designed to minimise the impacts on the local water environment using features such as dedicated attenuation ditches and storage ponds incorporated into the design.

3. Methodology

3.1 Guidance Documents

This Screening for AA was undertaken following guidance from the Office of the Planning Regulator (OPR), '*Appropriate Assessment Screening for Development Management. OPR Practice Note PN01*' (OPR 2021), but also taking cognisance of the following guidance:

- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities (Department of Environment, Heritage and Local Government (DoEHLG) 2010);
- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC 2021);
- Communication from the Commission on the Precautionary Principle (EC 2000);
- Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission (EC, 2007);
- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC 2021); and
- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (EC 2013);
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC 2018).

3.2 Screening Methodology

Steps required for Screening include the following:

- Determination of whether a project or plan is directly connected with or necessary to the conservation management of any European sites⁴.
- Description of the details of the project/plan (including the site characteristics/plan area).
- Description of the characteristics of European sites that might be affected (i.e. identification of QIs and COs that could be affected as a result of progressing the project/plan).
- Assessment of LSEs on relevant European sites in view of the sites' COs, either individually or in-combination with other plans and projects.
- Presentation of a screening assessment which should determine if the project/plan individually or in-combination with other plans and projects could undermine the COs of the site(s) and give rise to LSEs. The assessment of LSEs must be undertaken in the absence of mitigation measures.

3.3 Source-Pathway-Receptor Model and Zone of Influence

When assessing the Proposed Project, the 'source-pathway-receptor' model is applied taking consideration of all potential impact pathways connecting elements of the Proposed Project to European sites in view of their COs.

The source-pathway-receptor conceptual model is a standard tool in environmental assessment. In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism means that there is no likelihood for the effect to occur (e.g. no potential for LSEs).

The 'source-pathway-receptor' model is focused solely on the QIs for which European sites are designated as per the latest published COs as documented on the NPWS website⁵. Potential impact pathways assessed are:

⁴ The Proposed Project is not directly connected with or necessary to the conservation management of any European sites.

⁵ <https://www.npws.ie/protected-sites/conservation-management-planning/conservation-objectives>.

- Habitat loss;
- Mortality;
- Habitat degradation – changes in water quality;
- Habitat degradation – changes in air quality;
- Habitat degradation – hydrological/hydrogeological changes;
- Habitat degradation – spread of invasive alien species (IAS); and
- Physical disturbance.

The Zone of Influence (ZoI) is the area over which impacts could occur to ecological features from the Proposed Project. The determination of a ZoI for a project is identified for each impact pathway as each pathway has different ZoI.

There is potential for LSE where the ZOI of a potential impact pathway overlaps a QI habitat or supporting / functionally linked habitat of QI species.

3.4 Desk-Based Data Review

The following key resources were analysed to inform the baseline description of the sites and surrounding environment:

- Aerial imagery (ESRI).
- Environmental Protection Agency (EPA) rivers and water quality data Water Framework Directive (WFD) status online at <https://gis.epa.ie/EPAMaps/> [accessed January 2024].
- Mapping of European site boundaries available online at www.npws.ie [accessed January 2024].
- Protected species data from the National Biodiversity Data Centre online at <http://www.biodiversityireland.ie/> [accessed January 2024].
- National Parks and Wildlife Service (NPWS) (2019a). The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.
- NPWS (2019b). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.
- NPWS (2019c). The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.
- Online data available on European sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including: the Natura 2000 network Data Form; Site Synopsis; Generic Conservation Objective data [accessed January 2024].
- Protected and invasive species data from the National Biodiversity Data Centre (NBDC) online at <http://www.biodiversityireland.ie/> [accessed January 2024].
- Online web portal of Inland Fisheries Ireland (IFI) Inland Fisheries Ireland Data Hub (arcgis.com) [accessed January 2024].
- O'Connor W. (2006) A baseline survey of juvenile lamprey populations in the River Feale catchment. Irish Wildlife Manuals, No. 22. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

3.5 Site Surveys

3.5.1 Habitat Surveys

General habitat surveys were undertaken by experienced Jacobs ecologists between August and October 2022. At this time, habitats within the survey area (i.e. up to 250m from the Proposed Project) were mapped according to Heritage Council's habitat codes (Fossitt 2000) and in accordance with Best Practice Guidance for Habitat Survey and Mapping (Smith *et al.* 2011). Plant species present that were either representative of a habitat, or considered to be of conservation interest were recorded, along with their relative abundances. The extents of habitats were recorded using a tablet mobile mapper with aerial imagery and GPS (Global Positioning System) location. Additional habitat surveys were required in March 2024 in some areas to account for changes to the Proposed Project design.

Habitats were assessed for their potential to support QIs (Annex I habitats and Annex II species) associated with European sites. The assessment of species and habitats including IAS was undertaken in line with the following guidelines and informed this Screening for AA:

- A Guide to Habitats in Ireland. The Heritage Council (Fossitt 2000);
- Article 17 reports (NPWS 2019a, 2019b, and 2019c);
- CIEEM Good Practice Guidance for Habitats and Species (CIEEM 2021);
- CIEEM Guidelines for Preliminary Ecological Appraisal. Second Edition (CIEEM 2017);
- CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018);
- National Roads Authority (NRA) Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (NRA 2010);
- Transport Infrastructure Ireland (TII) The Management of Invasive Alien Plant Species on National Roads, Standard (TII 2020a); and
- Transport Infrastructure Ireland (TII) The Management of Invasive Alien Plant Species on National Roads, Technical Guidance (TII 2020b).

3.5.2 Marsh Fritillary

During the initial habitat walkover surveys, areas of grassland that were found to contain devil's-bit scabious *Succisa pratensis* were identified. Devil's-bit scabious is the food plant of the marsh fritillary butterfly *Euphydryas aurinia*. Further field surveys subsequently took place in September 2023 to map habitat suitability in these areas and search for larval webs to determine presence/absence of this species. Additional habitat surveys were required in March 2024 in some areas to account for changes to the Proposed Project design; surveyors assessed additional areas for the presence devil's-bit scabious.

3.5.3 Habitat Suitability Surveys – Aquatic Species

Aquatic habitat surveys were undertaken between 25th–29th July 2022 for all watercourses up to 1km downstream of any crossing point within the Proposed Project. Aquatic habitat surveys were repeated in August – October 2024 for all watercourses up to 150m up and downstream of crossing point where access allowed to update the baseline. Some of the watercourses were heavily shaded by vegetation and were not able to be fully inspected by surveyors. Whilst some areas could not be fully surveyed, the baseline information gathered during surveys is considered sufficient to inform a robust and thorough assessment of potential impacts. Furthermore, a precautionary approach has been adopted.

These watercourses were visually assessed for the potential to support aquatic species including fish and freshwater pearl mussel *Margaritifera margaritifera*. In addition, physical attributes such as channel form, flow conditions, substrates, wet width and depths were recorded. The habitat was assessed for its suitability for aquatic species, specifically substrates and flows suitable for salmonid spawning and nursery areas, and features that provide suitable refuge such as large unconsolidated substrates, macrophytes, overhanging vegetation, tree roots and woody debris.

3.5.4 eDNA Sampling: Aquatic Species

Locations identified as having appropriate habitat for Atlantic salmon *Salmo salar* during the habitat suitability surveys were selected for eDNA surveys to determine the presence or likely absence of these species within the selected watercourses. Samples were collected from six watercourses, River Daar, Dooally River, River Arra and three tributaries of the River Arra in September 2022 and October 2024. These were sent to Surescreen Scientifics for subsequent analysis.

3.5.5 Otter Surveys

Terrestrial mammal surveys were undertaken in tandem with the habitat surveys, including otter *Lutra lutra*. Watercourses were searched for field signs of otter activity, and where observed, the level of activity and status of any otter holt was recorded, along with any evidence of activity including tracks, feeding signs, spraints, or couches (otter resting places).

3.5.6 Breeding Bird Surveys

Breeding bird surveys were conducted over three visits during May, June and July 2022 using a methodology adapted from the Breeding Bird Survey (Gilbert *et al.* 1998) combined with the Common Bird Census (CBS) survey methodology. These survey methods targeted potential breeding territories of raptors, waterbirds and passerines of conservation concern (e.g. waders and red/amber-listed species), as well as QI species of nearby European sites.

3.5.7 Wintering Bird Surveys

Wintering bird surveys were conducted by EirEco Ltd on behalf of Jacobs during November 2021, December 2021, January 2022 and February 2022. Surveys were repeated monthly by Jacobs ecologists between November 2024 and March 2025. Surveys in 2024 and 2025 included dusk and dawn hen harrier roost surveys. Winter bird surveys covered habitats within 400m of the Proposed Project. This survey buffer ensured that the disturbance distances of the wariest bird species likely to be encountered in the area was sufficiently covered.

4. Identification of Relevant European Sites

4.1 Potential Effect Pathways from Proposed Project

Table 4.1 describes the potential impacts that could occur as a result of Proposed Project, the potential effects on European sites and associated QI species or habitats, and the ZOI of each impact that have been used in the assessment.

Table 4.1: Potential Effect Pathways from Proposed Project on European Sites

Potential Impact Pathways on European Sites	Potential Pathway Description	Zone of Influence
Habitat loss	The Proposed Project activities including temporary works areas and access routes could result in direct loss of QI habitat (terrestrial or aquatic) or supporting habitat for QI species in a European site, or functionally linked land associated with mobile QI species outside the boundaries of European sites.	The ZOI assessed is within the footprint of the Proposed Project. Physical loss of habitat is only possible within the boundary of a European site, or within an area of functionally linked land habitat outside of the European site (for example, off-site area of known foraging, roosting, breeding habitat for a QI for which a nearby European site is designated).
Mortality	Mortality of species could occur through killing of individuals by construction works or death of individuals on roads that have to cross roads because their existing commuting routes along watercourses have been severed.	The ZOI assessed is within the footprint of the Proposed Project or within 50m of where watercourses that are currently open will be crossed by a new road or culverted.
Habitat degradation – changes in water quality	Water quality can be affected by oil, chemicals, heavy metals, etc during construction (from plant operation and fuelling) or through runoff during operation (from traffic using new roads). Water quality can also be affected by sedimentation through runoff during construction. Changes in water quality could directly affect QI species or habitats or affect them indirectly through loss of aquatic prey species, or through changes in their habitat.	The ZOI assessed is within the footprint of the Proposed Project or within hydrologically linked areas. Pollutants can travel along hydrological linkages to a considerable distance from works.
Habitat degradation – changes in air quality	Air quality can be affected by increased emissions from construction traffic during construction or from increased traffic during operation. Increased deposition of pollutants from traffic can degrade habitats.	The ZOI assessed is within the footprint of the Proposed Project or within 200m of the footprint of the Proposed Project, based on guidance from the Highways Agency (2007).
Habitat degradation – hydrological/ hydrogeological changes	Construction impacts related to tunnelling and/or deep excavations can affect groundwater quality and/or quantity and thereby the existing hydrological regime. Changes in hydrogeology can alter geomorphological processes which can affect the deposition of shingle or other material potentially impacting on habitat of QI fish species, etc. Changes in these processes can impact aquatic/riparian/terrestrial habitats and species either directly or indirectly.	The ZOI assessed is within the footprint of the Proposed Project or within groundwater connectivity.
Habitat degradation – spread of invasive alien species	IAS can be spread either through the spread of species already within the construction site (through transfer on plant or within materials moved during earthworks), or by	The ZOI assessed is within the footprint of the Proposed Project.

Potential Impact Pathways on European Sites	Potential Pathway Description	Zone of Influence
	importing materials from outside the construction site (on the wheels of plant or delivery vehicles, etc).	The spread or importing of IAS can only occur within the construction site.
Physical disturbance	<p>Development could result in disturbance of QI species. This disturbance may include, noise and vibration, or visual stimuli such as movement (of people and/or vehicles) and lighting.</p> <p>Disturbance may lead to the abandonment of habitats or resting sites by QI species, which could include designated supporting habitat or functionally linked habitats outside of a European site.</p>	<p>The ZOI assessed is within the footprint of the Proposed Project or within 400m of the construction or operation of the road. The ZOI only relates to where this distance overlaps habitat within the boundary of a European site, or within an area of functionally linked land habitat outside of the European site (for example, off-site area of known foraging, roosting, breeding habitat for a QI for which a nearby European site is designated).</p> <p>400m is considered to be an appropriate distance to assess disturbance as QI species are unlikely to be significantly disturbed beyond this distance.</p>

4.2 European Sites within the ZOI of the Proposed Project

The 'source-pathway-receptor' model was applied taking consideration of all potential impact pathways (Table 4.1) connecting elements of the Proposed Project to European sites in view of their COs.

The Proposed Project was examined with reference to their location to European sites and, taking account of the potential effects outlined in Table 4.2, the following European sites are considered to be within the ZOI of the Proposed Project:

- Lower River Shannon SAC (002165) – this site lies within the ZOI for:
 - Mortality;
 - Habitat degradation – changes in water quality;
 - Habitat degradation – changes in air quality;
 - Habitat degradation – hydrological/hydrogeological changes; and
 - Physical disturbance
- Barrigone SAC (000432) – this site lies within the ZOI for:
 - Habitat loss;
 - Mortality; and
 - Physical disturbance
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161) – this site lies within the ZOI for:
 - Habitat degradation – changes in water quality;
 - Habitat degradation – changes in air quality;
 - Habitat degradation – hydrological/hydrogeological changes;
 - Habitat degradation – spread of invasive non-native species; and
 - Physical disturbance.
- River Shannon and River Fergus Estuaries SPA (004077) – this site lies within the ZOI for:

- Habitat degradation – changes in water quality;
- Habitat degradation – changes in air quality;
- Habitat degradation – hydrological/hydrogeological changes;
- Habitat degradation – spread of invasive non-native species; and
- Physical disturbance.

The QI and COs of these European sites are detailed in Table 4.2 and these European sites are shown in Figure 1, Appendix A.

Table 4.2: European Sites within the ZOI of the Proposed Project

European Site Name and Code	Distance of Site from the Proposed Project	Conservation Objectives and Qualifying Interests (*=priority habitat).
Special Area of Conservation (SAC)		
Lower River Shannon SAC (002165)	Direct distance: 6.3km Hydrological distance: 28km	<p>To maintain or restore the favourable conservation condition of the Annex I habitats and Annex II species for which the SAC has been selected.</p> <p>Sandbanks which are slightly covered by sea water all the time [1110]</p> <p>Estuaries [1130]</p> <p>Mudflats and sandflats not covered by seawater at low tide [1140]</p> <p>*Coastal lagoons [1150]</p> <p>Large shallow inlets and bays [1160]</p> <p>Reefs [1170]</p> <p>Perennial vegetation of stony banks [1220]</p> <p>Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]</p> <p><i>Salicornia</i> and other annuals colonising mud and sand [1310]</p> <p>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]</p> <p>Mediterranean salt meadows (<i>Juncetalia maritimii</i>) [1410]</p> <p>Watercourses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]</p> <p><i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410]</p> <p>*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion, Alnion incanae, Salicion albae</i>) [91EO]</p> <p>Freshwater pearl mussel <i>Margaritifera margaritifera</i> [1029]</p> <p>Sea lamprey <i>Petromyzon marinus</i> [1095]</p> <p>Brook lamprey <i>Lampetra planeri</i> [1096]</p> <p>River lamprey <i>Lampetra fluviatilis</i> [1099]</p> <p>Atlantic salmon <i>Salmo salar</i> [1106]</p>

European Site Name and Code	Distance of Site from the Proposed Project	Conservation Objectives and Qualifying Interests (*=priority habitat)
		Common bottlenose dolphin <i>Tursiops truncatus</i> [1349] Otter <i>Lutra lutra</i> [1355]
Barrigone SAC (000432)	Direct distance 13.9km Hydrological distance: N/A	To maintain or restore the favourable conservation condition of the Annex I habitats and Annex II species for which the SAC has been selected. <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] Limestone pavements [8240] Marsh Fritillary <i>Euphydryas aurinia</i> [1065]
Special Protection Area (SPA)		
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	Direct distance: 2km Hydrological distance: N/A	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Hen harrier <i>Circus cyaneus</i> [A082]
River Shannon and River Fergus Estuaries SPA (004077)	Direct distance: 14.2km Hydrological distance: 28km	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Cormorant <i>Phalacrocorax carbo</i> [A017] Whooper swan <i>Cygnus cygnus</i> [A038] Light-bellied Brent goose <i>Branta bernicla hrota</i> [A046] Shelduck <i>Tadorna tadorna</i> [A048] Wigeon <i>Anas penelope</i> [A050] Teal <i>Anas crecca</i> [A052] Pintail <i>Anas acuta</i> [A054] Shoveler <i>Anas clypeata</i> [A056] Scaup <i>Aythya marila</i> [A062] Ringed plover <i>Charadrius hiaticula</i> [A137] Golden plover <i>Pluvialis apricaria</i> [A140] Grey plover <i>Pluvialis squatarola</i> [A141] Lapwing <i>Vanellus vanellus</i> [A142] Knot <i>Calidris canutus</i> [A143] Dunlin <i>Calidris alpina</i> [A149] Black-tailed godwit <i>Limosa limosa</i> [A156] Bar-tailed godwit <i>Limosa lapponica</i> [A157] Curlew <i>Numenius arquata</i> [A160] Redshank <i>Tringa totanus</i> [A162] Greenshank <i>Tringa nebularia</i> [A164]

European Site Name and Code	Distance of Site from the Proposed Project	Conservation Objectives and Qualifying Interests (*=priority habitat).
		Black-headed gull <i>Chroicocephalus ridibundus</i> [A179] Wetland and waterbirds [A999]

4.3 Other European Sites

In addition to the sites listed in Table 4.2, two other European sites are present within the wider area around the Proposed Project (Figure 1, Appendix A). However, these European sites were not considered to be within any of the Zol, and so were assessed as being not relevant European sites as there are no feasible effects pathways:

- **Askeaton Fen Complex SAC (002279)** – 18.6km northeast of the Proposed Project. This site is designated for fen habitats (NPWS 2023). This site is not within hydrological connectivity of the Proposed Project and is beyond other Zol; and
- **Curraghchase Woods SAC (000174)** – 25.6km northeast of the Proposed Project. This site is designated for alluvial forests, yew forests, Desmoulin's whorl snail *Vertigo moulinsiana* and lesser horseshoe bat *Rhinolophus hipposideros* (NPWS 2018). This site is not within hydrological connectivity of the Proposed Project and is beyond other Zol.

5. Baseline Characterisation

The following section provides an overview of the baseline environment within the Proposed Project study area including habitats, European sites, QI species and habitats for these sites and aquatic environments.

5.1 General Description of Habitats (including Annex I)

No Annex I habitats were identified within the footprint of the Proposed Project in the desk-based review. Habitats and flora within the site were classified using the Heritage Council's Guide to Habitats in Ireland (Fossitt 2000).

The lands surrounding the Proposed Project were mainly comprised of mixed agricultural land (improved agricultural grassland GA1 and wet grassland GS4), dominated by soft rush *Juncus effusus* with long sward grass. There was rural residential land scattered along the area. Dense scrub was widespread throughout the survey area, predominantly along the boundaries of fields, roads and watercourses. Scrub areas were predominantly comprised of bramble *Rubus fruticosus*, ivy *Hedera hibernica*, gorse *Ulex europaeus*, bracken *Pteridium aquilinum*, willow *Salix* sp. and hawthorn *Crataegus monogyna*. There were also areas of woodland including large conifer plantations, immature woodland and small patches of willow woodland bordering watercourses.

5.2 European Sites

The Proposed Project is not within any European site; however, there are four sites that can be considered within the ZOI for the Proposed Project.

- Lower River Shannon Special Area of Conservation (SAC) (Site code: 002165) is 6.3km from the Proposed Project. The site is designated for a range of coastal habitats and aquatic species and is hydrologically linked to the Proposed Project (NPWS 2012a). The SAC is located approximately 28km through its closest hydrological connection via the River Deel (all watercourses crossed by the Scheme have hydrological connections to this SAC).
- Barrigone SAC (000432) is 13.9km from the ZOI from the Proposed Project. The site is designated for a range of terrestrial habitats as well as marsh fritillary. Any habitats within the ZOI of the Proposed Project may be functionally linked to this European site (NPWS 2019d).
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle Special Protection Area (SPA) (Site code: 004161) is 1.8km from the Proposed Project and habitats within the ZOI of the Proposed Project may be functionally linked to this European site. The SPA is designated for a single bird species, hen harrier *Circus cyaneus* (NPWS 2022).
- River Shannon and River Fergus Estuaries SPA (004077) is 14.2km from the Proposed Project. The SPA is designated for a range of breeding and wintering bird species and is hydrologically linked to the Proposed Project (NPWS 2012b). The SPA is located approximately 26km through its closest hydrological connection via the River Deel (all watercourses crossed by the Scheme have hydrological connections to this SPA).

5.3 Qualifying Interest species

The desk-based review of the National Biodiversity Data Centre (NBDC) returned low resolution records (10km and 2km grid squares) of the following QI species associated with the European sites above. Records were considered where 10km and 2km grid square results intersected with the ZOI of the Proposed Project.

5.3.1 Otter (Lower River Shannon SAC)

A search of NBDC returned 15 records of otter within 5km of the Proposed Project. The most recent record was from 2017.

Surveys of 10 of the 11 watercourses that cross the Proposed Project in 2022 and 2024 assessed them as having potentially suitable habitats for otter. Some sections of the watercourses could not be surveyed due to land access constraints, or because the heavily vegetated nature of the riverbanks prevented surveyors from close inspection of the entire river channel to assess for signs of otter. Seven watercourses were identified as having suitable habitat for

commuting and foraging and/or resting otter. The other three watercourses were identified as being suitable only for commuting otter. Although River Arra Tributary 3 could not be surveyed, as a precaution, this watercourse has been assessed as being suitable for commuting and resting otter due to its connectivity and likely similarities to River Arra Tributary 4 (Garryduff).

Two potential couches were identified during the 2024 watercourse assessment; one was noted within the Proposed Project on River Arra Tributary 12 (Dooally) between chainages 3+750/3+800 and the other on the north side of the CPO on the River Daar between chainages 5+050/5+100, although these could not be confirmed as having been created by otter. No other evidence of otter such as holts, slides, spraint, anal jelly, footprints, feeding remains or mammal paths were identified during the surveys. Five watercourses were identified as having suitable habitat for commuting, foraging and resting otter. Two watercourses were identified as being suitable for commuting and foraging otter and three watercourses were identified as being suitable only for commuting otter.

5.3.2 Atlantic Salmon (Lower River Shannon SAC)

Desk study showed that the River Deel had low densities of salmon fry in the middle to lower reaches, with salmon fry absent in the upper headwaters reach (IFI 2022). The watercourses crossed by the Proposed Project are all headwaters of the River Deel. River Arra Tributary 12 and the River Daar had records of salmon fry upstream of the crossing point of the Proposed Project. River Arra Tributaries 3, 4 (Garryduff) and 5 were excluded from the IFI surveys in 2021. Salmon fry were recorded as absent from River Arra Tributaries 6 (Killaghteen) and 7 (Killeline). River Arra Tributaries 9 (Arra) and 10 (Cullenagh) had negative records for salmon fry upstream of the crossing location of the Proposed Project; however, records of salmon fry were present close downstream. River Arra Tributary 11 (Dromin) and Ballyfraley Stream were not sampled upstream of the crossing locations; however, records of salmon fry were present downstream of the crossing location of the Proposed Project. On the River Arra, similar trends with salmon fry were observed with fry present in the middle to lower reach (south of the Proposed Project) but absent in the upper reach (north-west of the Proposed Project).

The eDNA survey in watercourses returned results for Atlantic salmon in six watercourses: River Daar, and Garryduff, Killeline, Arra, Dromin and Dooally (River Arra Tributaries 4, 7, 9 11 and 12).

5.3.3 Sea, Brook and River Lamprey (Lower River Shannon SAC)

Desk study showed that all three native species of lamprey are known to be present within the lower reaches of the River Shannon but their presence within the River Deel catchment and the tributary watercourses crossed by the Proposed Project is unknown (NPWS 2013).

Habitat within watercourses under or close to crossing points with the Proposed Project were considered unsuitable to support river, brook or sea lamprey with a lack of suitable instream features, including the absence of silt beds required by lamprey ammocoetes (larval stage).

The eDNA surveys in River Daar, and Garryduff, Killeline, Arra, Dromin and Dooally (River Arra Tributaries 4, 7, 9, 11 and 12) which were assessed as having potential to host aquatic species returned negative presence for brook lamprey and sea lamprey. eDNA sampling was not carried out on Unnamed (River Arra Tributary 5), Killaghteen (River Arra Tributary 6) and Cullenagh (River Arra Tributary 10) or Ballyfraley Stream because the instream habitat was deemed to be unsuitable for lamprey species due to the low flow and sections of the watercourse being dry.

5.3.4 Hen Harrier (Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA)

Confirmed breeding hen harrier was recorded within the 10km tetrad(s) containing the Proposed Project during the 2022 National Survey (Ruddock *et al.* 2024). Although specific locations are not provided, 21 breeding pairs were also recorded in the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA in 2022 (Ruddock *et al.* 2024).

Hen harrier has been recorded throughout the 5km Study Area for the Proposed Project; NBDC returned records of hen harrier at grid reference R23 (NBDC 2025), which has a resolution of 10km, but encompasses the Proposed Project (most recently recorded in 2024). These records included a sighting of fledged young.

Habitat surveys determined that there is limited suitable breeding and wintering habitat present within 400m of the Proposed Project. Dedicated hen harrier vantage point surveys undertaken in May 2024 focused on an area of spruce *Picea* sp. plantation surrounded by wet grassland at Irish Grid Ref. R2756435626. It was generally considered that the habitat offered unsuitable breeding habitat for hen harrier, however wet grassland offers suitable foraging/hunting habitat in areas important for breeding hen harrier (NPWS 2015). Conifer plantations considered suitable for winter roosting hen harrier (surrounded by grassland habitats suitable for foraging) were recorded to in the eastern end of the Proposed Project, as well as the centre and west of the Proposed Project. These were surveyed from four vantage points (VPs 1-4) in winter 2024/2025 (dusk and dawn surveys). No observations of hen harrier were recorded as part of the breeding or wintering bird surveys.

A pair of hen harrier were incidentally recorded in the eastern-most extent of the Proposed Project (chainage 6+900) in May 2022 during habitat surveys. The pair were seen perched in a treeline before flying north. The location was adjacent to established conifer plantations, newly planted conifer plantation and agricultural grasslands. No breeding behaviour was recorded.

Anecdotal evidence was obtained of hen harrier being noted in the vicinity of the Proposed Project within Churchtown and Dooally, most recently in April 2024.

It is considered likely that the incidental and anecdotal records of hen harrier were either birds on route to breeding sites within the SPA, or other suitable breeding habitat, or were non-breeding individuals.

5.3.5 Breeding and Wintering Bird Species (River Shannon and River Fergus Estuaries SPA)

A search of NBDC returned records of three qualifying species of the River Shannon and River Fergus Estuaries SPA within 5km: Whooper swan *Cygnus cygnus* (two records), cormorant *Phalacrocorax carbo* (nine records) and black-headed gull *Larus ridibundus* (22 records). No other information is provided as to the location of these species in regard to the Proposed Project.

The wintering bird survey in 2021/2022 recorded instances of four QI species of the SPA within the study area: cormorant (max count seven), black-headed gull (max count three), golden plover *Pluvialis apricaria* (max count 57), and lapwing *Vanellus vanellus* (max count ten). No QI species were recorded as part of the breeding bird survey.

The wintering bird survey of 2024/2025 recorded instances of two QI species of the SPA within 400m of the scheme: cormorant (max count six) and lapwing (max count 18).

5.3.6 Marsh Fritillary (Barrigone SAC)

Suitable habitat containing devil's-bit scabious was identified in the fields located to the east of Churchtown (chainage 4+800 – 5+000 and ch5+850) within the Proposed Project. Furthermore, devil's-bit scabious was also recorded in a field of high diversity wet grassland to the north of Churchtown (chainage 0+360 – 0+180). No larval webs were recorded during the surveys.

While no adults or larval webs were recorded, the presence of devil's-bit scabious and other suitable habitat features (Fowles 2005) means it is considered likely that marsh fritillary utilise some of the habitats within the scheme. The long-distance dispersal of marsh fritillary is understood to be 15km (Zimmermann *et al.* 2011); therefore, any suitable habitat that lies within the Zol of the Proposed Project may be functionally linked to this European site.

5.4 Aquatic Environment (Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA)

The Proposed Scheme crosses 11 watercourses including the River Arra and its tributaries, the River Daar and the Ballyfrazley Stream all of which are hydrologically linked to the River Shannon SAC and River Shannon and River Fergus Estuaries SPA (see Figure 1, Appendix A). The following watercourses are adjacent to or being crossed by the Proposed Project.

- River Arra and Tributaries:
 - The River Arra (River Arra Tributary 9) and Dooally (River Arra Tributary 12), have a WFD status of Poor and a risk rating of At Risk as determined by Ireland's Monitoring Programme 2016-2021. These watercourses retain good morphological status with good stocks of Atlantic salmon and extensive areas of gravel spawning habitat.
 - Atlantic salmon and lamprey species are considered likely to be present within the River Arra tributaries Garryduff (River Arra Tributary 4), Killeline (River Arra Tributary 7), and Dromin (River Arra Tributary 9).
 - Atlantic salmon and lamprey species are considered likely to be absent within the River Arra tributaries Killaghteen (River Arra Tributary 6) and Cullenagh (River Arra Tributary 10) due to unsuitable instream habitat.
- River Darr:
 - River Daar was assigned a WFD status of Moderate as determined by Ireland's Monitoring Programme 2016-2021 and has a risk rating of At risk.
 - Walkover surveys noted the presence of cobble and gravel substrates with some areas heavily sedimented. Inland Fisheries Ireland (IFI) have assessed the apron on Daar Bridge on the R521 as a barrier to fish migration.
 - River Daar is an important salmonid river that provides spawning and nursery habitat for Atlantic salmon.
- Ballyfrazley Stream:
 - Ballyfrazley Stream was assigned a Water Framework Directive (WFD) status of Good as determined by Ireland's Monitoring Programme 2016-2021. No risk rating is currently assigned to this watercourse, and it is categorised as 'Review'.
 - The watercourse is small, straightened and widened in many areas and is extensively culverted under the N21. Cobble and pebble substrates are present, but many areas are heavily silted.
 - Atlantic salmon and lamprey species are considered likely to be present in Ballyfrazley Stream.

5.5 Invasive Non-native Species

A desk-based review identified a total of nine invasive non-native plant species⁶, which were recorded within 5km of the Proposed Project, including: Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Reynoutria japonica*, Himalayan honeysuckle *Leycesteria formosa*, cherry laurel *Prunus laurocerasus*, rhododendron *Rhododendron ponticum*, three-cornered garlic *Allium triquetrum*, butterfly-bush *Buddleja davidii*, evergreen oak *Quercus ilex* and sycamore *Acer pseudoplatanus*.

There was one non-native invasive plant species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 present within or in close proximity to the Proposed Project, Himalayan balsam. The locations of this non-native invasive plant species recorded within 250m of the Proposed Project during the habitat surveys are detailed below.

⁶ Species listed on the Third Schedule: Part 1 are non-native species subject to restrictions under Regulations 49 and 50. Full list of species found here: <https://invasivespeciesireland.com/wp-content/uploads/wp-post-to-pdf-enhanced-cache/1/third-schedule-part-1-plants.pdf>

- 3+800 – Several plants of Himalayan balsam growing along Dooally (River Arra Tributary 12) which crosses the Proposed Project. The plants are located 220m upstream of the Proposed Project.
- 5+100 – Several plants of Himalayan balsam growing along River Daar which crosses the Proposed Project. The plants are located 170m downstream of the Proposed Project.

6. Assessment of Likely Significant Effects (LSEs)

6.1 Screening Exercise

An identification of European sites and their QI features within the potential ZOI of the Proposed Project is presented in Table 4.2. The determination of LSEs is considered to be any effect that may possibly occur as a consequence of the Proposed Project that would undermine the COs for the QIs of a site.

Potential pathways have been identified between the Proposed Project and European sites as discussed in Section 4 and 5, and outlined in Table 6.1. The four sites identified for further assessment are:

- Lower River Shannon SAC;
- Barrigone SAC;
- Stack's to Mullaghareirk Mountains, West limerick Hills and Mount Eagle SPA; and
- River Shannon and River Fergus Estuaries SPA.

Table 6.1: European Sites with the Potential for LSEs from the Proposed Project

European Site Name and Code	Distance of Site from the Proposed Project	Qualifying Interests (*=priority habitat).	Pathway to Effect	Likely Significant Effects (LSEs)
Special Area of Conservation (SAC)				
Lower River Shannon SAC (002165)	Direct distance: 6.3km Hydrological distance: 28km	<p>Sandbanks which are slightly covered by sea water all the time [1110]</p> <p>Estuaries [1130]</p> <p>Mudflats and sandflats not covered by seawater at low tide [1140]</p> <p>*Coastal lagoons [1150]</p> <p>Large shallow inlets and bays [1160]</p> <p>Reefs [1170]</p> <p>Perennial vegetation of stony banks [1220]</p> <p>Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]</p> <p><i>Salicornia</i> and other annuals colonising mud and sand [1310]</p> <p>Atlantic salt meadows <i>Glauco-Puccinellietalia maritimae</i> [1330]</p> <p>Mediterranean salt meadows <i>Juncetalia maritimi</i> [1410]</p> <p>Watercourses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]</p> <p><i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils <i>Molinion caeruleae</i> [6410]</p> <p>*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> <i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i> [91EO]</p>	<p>Habitat loss There will be no direct loss of SAC QI habitat as the works are beyond the Zol, therefore impacts associated with direct habitat loss were ruled out.</p> <p>Mortality Habitats are not sensitive to mortality.</p> <p>Habitat degradation – changes in water quality The hydrological distance from the Proposed Project to sensitive aquatic QI habitats in coastal environments is approximately 28km, and therefore it is highly likely any inadvertently introduced pollutants would be diluted by the sea prior to reaching these habitats leading to ecologically inconsequential effects.</p> <p>Habitat degradation – changes in air quality Habitats sensitive to changes in air quality are greater than 6km from the Proposed Project so are beyond the Zol, therefore impacts associated with changes in air quality were ruled out.</p> <p>Habitat degradation – hydrological/hydrogeological changes The Proposed Project is greater than 28km from habitats sensitive to hydrological/hydrogeological changes so is beyond the Zol, therefore impacts associated with hydrological/hydrogeological changes were ruled out.</p> <p>Habitat degradation – spread IAS The Proposed Project is greater than 28km from habitats sensitive to IAS so is beyond the Zol, therefore impacts associated with IAS were ruled out.</p> <p>Physical Disturbance Habitats are not sensitive to disturbance.</p>	No LSEs predicted for Lower River Shannon SAC QI habitats.
		<p>Non-migratory aquatic species</p> <p>Freshwater pearl mussel [1029]</p> <p>Common bottlenose dolphin [1349]</p>	Habitat Loss There will be no direct loss of QI supporting or functionally linked habitat as the works are beyond the Zol; therefore, impacts associated with direct habitat loss were ruled out.	No LSEs predicted for Lower River Shannon SAC non-migratory aquatic species.

European Site Name and Code	Distance of Site from the Proposed Project	Qualifying Interests (*=priority habitat).	Pathway to Effect	Likely Significant Effects (LSEs)
			<p>Mortality The extent of sensitivity of common bottlenose dolphin and freshwater pearl mussel is limited to areas beyond the Z0l of the Proposed Project. Works are unlikely to lead to direct mortality of these QI species.</p> <p>Habitat degradation – changes in water quality The hydrological distance from the Proposed Project to sensitive aquatic habitats of QI species in coastal environments is approximately 28km, and therefore it is highly likely any inadvertently introduced pollutants would be diluted by the sea prior to reaching these habitats leading to ecologically inconsequential effects. The distribution of freshwater pearl mussel is limited to an area beyond the coastal habitats of Lower River Shannon, approximately 66km from the Proposed Project.</p> <p>Habitat degradation – changes in air quality Common bottlenose dolphin and freshwater pearl mussel, and their associated habitats are not sensitive to changes in air quality.</p> <p>Habitat degradation – hydrological/hydrogeological changes The extent of sensitivity of common bottlenose dolphin and freshwater pearl mussel is limited to areas beyond the Z0l of the Proposed Project, therefore impacts associated with hydrological/hydrogeological changes were ruled out.</p> <p>Habitat degradation – spread of IAS The extent of sensitivity of common bottlenose dolphin and freshwater pearl mussel is limited to areas beyond the Z0l of the Proposed Project, therefore impacts associated with IAS were ruled out.</p> <p>Physical disturbance The extent of sensitivity of common bottlenose dolphin and freshwater pearl mussel is limited to areas beyond the Z0l of the Proposed Project, therefore impacts associated with physical disturbance were ruled out.</p>	
		<p>Migratory aquatic species Sea lamprey [1095] Brook lamprey [1096] River lamprey [1099]</p>	<p>Habitat loss There will be small scale loss of aquatic habitat as a result of the construction of the Proposed Project. However, considering the extent of habitat loss in context of the available habitat within the SAC and wider catchment, any effects would be negligible, and would not result in a significant effect on the SAC populations of lamprey species or Atlantic</p>	Yes. Potential for LSEs for Lower River Shannon SAC migratory aquatic species due to mortality, changes in

European Site Name and Code	Distance of Site from the Proposed Project	Qualifying Interests (*=priority habitat).	Pathway to Effect	Likely Significant Effects (LSEs)
		Atlantic salmon [1106]	<p>salmon. Therefore, impacts associated with direct habitat loss were ruled out.</p> <p>Mortality</p> <p>The Proposed Project is located adjacent to and crosses several watercourses which are hydrologically connected to the Lower River Shannon SAC at a 28km hydrological distance via the River Deel.</p> <p>Works taking place at or near watercourses are likely to have a mortality impact on QI fish species without mitigation, therefore impacts associated with mortality were screened in for further assessment.</p> <p>Habitat degradation – changes in water quality</p> <p>The Proposed Project is located adjacent to and crosses several watercourses which are hydrologically connected to the Lower River Shannon SAC at a 28km hydrological distance via the River Deel.</p> <p>Works taking place at or near watercourses and accidental pollution effects from operation of the Proposed Project can increase the possibility of pollutants or sediments entering watercourses and therefore increase the potential of LSEs to sensitive aquatic species within the SAC.</p> <p>There is a risk of LSEs to lamprey species and Atlantic salmon from contaminants entering the watercourse as run off or inadvertent spillages. High levels of silt may affect gill efficiency and reduce populations of aquatic invertebrate prey species.</p> <p>Habitat degradation – changes in air quality</p> <p>Fish species are not sensitive to changes in air quality associated with the Proposed Project. The European site is beyond the Zol for this impact pathway and therefore impacts associated with changes in air quality were ruled out.</p> <p>Habitat degradation – hydrological/hydrogeological changes</p> <p>Any deep excavations associated with construction works for bridges and culverts relating to the Proposed Project at watercourse crossings have the potential to impact the groundwater, which could affect the deposition of shingle or other material potentially impacting on aquatic habitats of aquatic QI species indirectly/directly. This was screened in for further assessment.</p> <p>Habitat degradation – spread of IAS</p>	water quality, changes in hydrology/ hydrogeology and physical disturbance.

European Site Name and Code	Distance of Site from the Proposed Project	Qualifying Interests (*=priority habitat).	Pathway to Effect	Likely Significant Effects (LSEs)
			<p>These QI species are not sensitive to IAS impacts.</p> <p>Physical disturbance</p> <p>The Proposed Project is located adjacent to and crosses several watercourses which are hydrologically connected to the Lower River Shannon SAC at a 28km hydrological distance via the River Deel.</p> <p>Works taking place at or near watercourses have the potential to cause disturbance to sensitive QI fish species (vibration/noise) without mitigation. This impact pathway was screened in for further assessment.</p>	
		Otter [1355]	<p>Habitat loss</p> <p>There will be small scale loss of aquatic habitat as a result of the construction of the Proposed Project. However, considering the extent of habitat loss in context of the available habitat within the SAC and wider catchment, any effects would be negligible and would not result in a significant effect on the otter population of the SAC. Therefore, impacts associated with direct habitat loss were ruled out.</p> <p>Mortality</p> <p>In the terrestrial environment impacts to otter from mortality cannot be ruled out. Two potential couches were identified in the vicinity of the Proposed Project. One was noted within the Proposed Project on the River Daar between chainages 5+050/5+100 and the other on the north side of the redline boundary at River Arra Tributary 12 (Dooally) between chainages 3+750/3+800. Without mitigation, direct mortality may occur.</p> <p>In the aquatic environment, works will take place during the daytime only, and otter will vacate the vicinity when disturbed from the works.</p> <p>There is risk of direct mortality to otter from the operation of the Proposed Project in areas where watercourses are crossed. Vehicles utilising newly constructed bridges could lead to the death of otter individuals at watercourse crossings.</p> <p>Habitat degradation – changes in water quality</p> <p>The Proposed Project is located adjacent to and crosses several watercourses which are hydrologically connected to the Lower River Shannon SAC at a 28km hydrological distance via the River Deel.</p> <p>Works taking place at or near watercourses and accidental pollution effects from operation of the Proposed Project can increase the possibility</p>	Yes. Potential for LSEs for Lower River Shannon SAC, due to mortality, changes in water quality, hydrological/ hydrogeological changes and physical disturbance.

European Site Name and Code	Distance of Site from the Proposed Project	Qualifying Interests (*=priority habitat).	Pathway to Effect	Likely Significant Effects (LSEs)
			<p>of pollutants or sediments entering watercourses and therefore increase the potential of LSEs to sensitive aquatic species within the SAC.</p> <p>There may be an impact to otter from loss of prey availability due to in-stream works or pollution events from the Proposed Project.</p> <p>Habitat degradation – changes in air quality</p> <p>Otters and their habitats are not sensitive to changes in air quality.</p> <p>Habitat degradation – hydrological/hydrogeological changes</p> <p>Any deep excavations associated with construction works for bridges and culverts relating to the Proposed Project at watercourse crossings have the potential to impact the groundwater, which could affect the deposition of shingle or other material potentially impacting on aquatic habitats of aquatic species indirectly/directly, potentially leading to loss of prey availability for otter. Furthermore, watercourse diversions have the potential to result in hydrogeological changes. This was screened in for further assessment.</p> <p>Habitat degradation – spread of IAS</p> <p>Otters are not sensitive to IAS impact pathways.</p> <p>Physical disturbance</p> <p>The Proposed Project is located adjacent to and crosses several watercourses which are hydrologically connected to the Lower River Shannon SAC at a 28km hydrological distance via the River Deel.</p> <p>Works taking place at or near watercourses have the potential to cause disturbance to otter QI species (light, noise, vibration) without mitigation. This impact pathway was screened in for further assessment.</p>	
Barrigone SAC (000432)	Direct Distance 13.9km Hydrological distance: N/A	Marsh fritillary [1065]	<p>Habitat loss</p> <p>There will direct permanent habitat loss of good condition marsh fritillary habitat within the footprint of the Proposed Project as a result of construction.</p> <p>Mortality</p> <p>Construction works associated with the Proposed Project in areas of good condition marsh fritillary habitat have the potential to result in the mortality of larval stage individuals of this species without mitigation. This impact pathway was screened in for further assessment.</p> <p>Habitat degradation – changes in water quality</p>	Yes. Potential for LSEs for Barrigone SAC, due to direct habitat loss, and mortality.

European Site Name and Code	Distance of Site from the Proposed Project	Qualifying Interests (*=priority habitat).	Pathway to Effect	Likely Significant Effects (LSEs)
			<p>Marsh fritillary is not sensitive to changes in water quality.</p> <p>Habitat degradation – changes in air quality</p> <p>The European site is over 13km from Proposed Project and is therefore outside the Zol for any changes in air quality to be of any ecological consequence.</p> <p>Habitat degradation – hydrological/hydrogeological changes</p> <p>Marsh fritillary are not sensitive to hydrological/hydrogeological changes.</p> <p>Habitat degradation – spread of IAS</p> <p>Marsh fritillary are not sensitive to IAS impacts.</p> <p>Physical disturbance</p> <p>Neither larval nor adult life stages of marsh fritillary are sensitive to disturbance impacts.</p>	
		<p><i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130]</p> <p>Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (*important orchid sites) [6210]</p> <p>Limestone pavements [8240]</p>	<p>Habitat loss</p> <p>There will be no direct loss of SAC QI habitat as the works are beyond of the Zol, therefore impacts associated with direct habitat loss were ruled out.</p> <p>Mortality</p> <p>Habitats are not sensitive to mortality.</p> <p>Habitat degradation – changes in water quality</p> <p>There is no hydrological link between the European site and the Proposed Project.</p> <p>Habitat degradation – changes in air quality</p> <p>The QI habitats are beyond of the Proposed Project, therefore impacts from changes in air quality were ruled out.</p> <p>Habitat degradation – hydrological/hydrogeological changes</p> <p>There is no hydrological link between the European site and the Proposed Project.</p> <p>Habitat degradation – spread of IAS</p> <p>The QI habitats are beyond of the Zol of the Proposed Project, therefore impacts from IAS were ruled out.</p> <p>Physical disturbance</p> <p>Habitats are not sensitive to disturbance.</p>	No LSEs identified from the Proposed Project.

European Site Name and Code	Distance of Site from the Proposed Project	Qualifying Interests (*=priority habitat).	Pathway to Effect	Likely Significant Effects (LSEs)
Special Protection Area (SPA)				
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161).	Direct distance: 1.8km Hydrological distance: N/A	Hen harrier [A082]	<p>Habitat loss There will be no loss of SPA habitat therefore impacts associated with direct habitat loss were ruled out. There will be small scale loss of suboptimal supporting habitat outside of the SPA, however, this is not considered to be significant compared to the extensive habitat suitable for hen harrier within the SPA and the wider area beyond the Proposed Project.</p> <p>Mortality Hen harrier utilise habitats outside of the SPA. There were observations of hen harrier in the vicinity of the Proposed Project, in addition to anecdotal evidence. It is unlikely that the construction or operation of the Proposed Project will result in ecologically consequential mortality of hen harrier. However, as hen harrier have been recorded in the vicinity of the Proposed Project and the Proposed Project is within the territorial range of hen harrier this pathway has been screened in adopting a precautionary approach.</p> <p>Habitat degradation – changes in water quality There is no hydrological link from the proposed works to this SPA and therefore there is no potential for indirect effects from a pollution event (e.g., changes in water quality) impacting on hen harrier.</p> <p>Habitat degradation – changes in air quality Hen harrier utilise habitats outside of the SPA. No suitable nesting habitat was recorded in the survey area, only suboptimal supporting habitat (GS4 wet grassland). There will be an ecologically inconsequential impact on hen harrier as only a small proportion of their foraging range in suboptimal habitat will be impacted by changes in air quality through operation of the Proposed Project.</p> <p>Habitat degradation – hydrological/hydrogeological changes There is no hydrological link from the Proposed Project to this SPA and therefore there is no potential for indirect effects from hydrological/hydrogeological changes.</p>	Yes, Potential for LSEs for Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA due to mortality and disturbance.

European Site Name and Code	Distance of Site from the Proposed Project	Qualifying Interests (*=priority habitat).	Pathway to Effect	Likely Significant Effects (LSEs)
			<p>Habitat degradation – spread of IAS Hen harrier is not sensitive to IAS impacts, therefore these have been ruled out for further assessment.</p> <p>Physical disturbance Hen harrier utilise habitats outside of the SPA. There were observations of hen harrier in the vicinity of the Proposed Project, in addition to anecdotal evidence. Additionally, due to the proximity to the SPA boundary, and the range of hen harrier, there is potential for disturbance impacts to this species within the Proposed Project area. No suitable nesting habitat was recorded in the survey area, only suboptimal supporting habitat (GS4 wet grassland). There is the potential for disturbance to hen harrier associated with the SPA from the construction of the Proposed Project. This impact pathway was screened in for further assessment.</p>	
River Shannon and River Fergus Estuaries SPA (004077) (NPWS 2012b)	Direct distance:14.2km Hydrological distance: 26km	Cormorant <i>Phalacrocorax carbo</i> [A017] Whooper swan [A038] Light-bellied Brent goose [A046] Shelduck [A048] Wigeon [A050] Teal [A052] Pintail [A054] Shoveler [A056] Scaup [A062] Ringed plover [A137] Golden plover [A140] Grey plover [A141] Lapwing [A142] Knot [A143] Dunlin [A149] Black-tailed godwit [A156] Bar-tailed godwit [A157] Curlew [A160]	<p>Habitat loss There will be no loss of SPA habitat therefore impacts associated with direct habitat loss were ruled out.</p> <p>Mortality The extent of sensitivity for QI bird species is beyond the Zol from the Proposed Project, which is located further than 14km from the European site. Therefore, impacts associated with mortality have been ruled out.</p> <p>Habitat degradation - changes in water quality There are several watercourses within the Proposed Project area which are all ultimately hydrologically linked to the River Shannon and River Fergus Estuaries SPA. Works taking place at or near watercourses and accidental pollution effects from operation of the Proposed Project can increase the possibility of pollutants or sediments entering watercourses and therefore increase the potential of LSEs to supporting habitat within the SPA. There may be an impact to bird species from loss of prey availability due to in-stream works or pollution events from the Proposed Project.</p> <p>There is a significant hydrological distance downstream (28km), and due to the assimilative capacity (dilution effect) of the River Deel and River Shannon, predicted impacts on QI habitats and species is likely low. However, there is potential for functionally linked land used by QI bird</p>	Yes. Potential for LSEs for River Shannon and River Fergus Estuaries SPA, due to changes in water quality.

European Site Name and Code	Distance of Site from the Proposed Project	Qualifying Interests (*=priority habitat).	Pathway to Effect	Likely Significant Effects (LSEs)
		Redshank [A162] Greenshank [A164] Black-headed gull [A179] Wetland and waterbirds [A999]	<p>species to exist closer to the Proposed Project, the impacts on changes in water quality on any functionally linked habitat would therefore need to be assessed further in NIS.</p> <p>Habitat degradation – changes in air quality The European site is 14.2km from the Zol from the Proposed Project, therefore impacts from changes in air quality were ruled out.</p> <p>Habitat degradation – hydrological/hydrogeological changes The Proposed Project is greater than 26km from habitats sensitive to hydrological/hydrogeological changes so is beyond the Zol, therefore impacts associated with hydrological/hydrogeological changes were ruled out.</p> <p>Habitat degradation – spread of IAS The Proposed Project is greater than 26km from habitats sensitive to IAS so is beyond the Zol, therefore impacts associated with IAS were ruled out.</p> <p>Physical disturbance The SPA is designated for wintering populations of the listed species. There is suitable supporting foraging habitat within the Proposed Project area. As QI species may utilise these areas for foraging there is potential for disturbance impacts to these species. However, there is an abundance of alternative supporting foraging habitat between the Proposed Project and the SPA. This habitat can be used as an alternative to areas disturbed by the works. Therefore, the works will not result in significant loss of foraging habitat and the impact on QI species will be ecologically inconsequential.</p>	

6.2 Determination of Likely Significant Effects

An examination of European sites and their QI features within the Z0L of the Proposed Project is presented in **Table 6.1**. It cannot be concluded on the basis of objective information that LSE can be excluded for the following pathways to effects on QIs of three European sites:

- Lower River Shannon SAC
 - Mortality:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
 - Habitat degradation – changes in water quality:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
 - Habitat degradation – changes in hydrology/hydrogeology:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
 - Physical disturbance:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
- Barrigone SAC
 - Direct habitat loss:
 - Marsh fritillary
 - Mortality:
 - Marsh fritillary
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
 - Mortality:
 - Hen harrier

- Physical disturbance:
 - Hen harrier
- River Shannon and River Fergus Estuaries SPA
 - Habitat degradation – changes in water quality:
 - All QI features

These impact pathways on QIs of this European site must therefore be assessed in an Appropriate Assessment, reported in a NIS, for LSE from the Proposed Project alone.

7. Assessment of In-Combination Effects

Impact pathways and QIs that have already been screened in for further AA alone need not be included in the assessment of in-combination effects as they will be included in the NIS. Qualifying features that were found to have no impact pathways from the Proposed Project need not be assessed for in-combination effects as the Proposed Project cannot contribute to a combined effect, regardless of other proposed plans and projects. Table 7.1 shows the QIs and impact pathways to be included and excluded from in-combination effects assessment. Those impact pathways that have a small effect from the Proposed Project, but not enough for any LSE alone will be the focus of this assessment.

Table 7.1: QI Features and Their Impact Pathways within European Sites Screened in for Further Assessment, Screened Out, or with Impact Pathways that have the Potential for In-combination LSEs with Other Projects.

European Site Name and Code	QI Features and Impact Pathways that have been Screened In for Appropriate Assessment	QI Features and Impact Pathways that Do Not Require Further Assessment	QI Features and Impact Pathways with Small Effect that would Lead to LSE with Other Projects
Special Area of Conservation (SACs)			
Lower River Shannon SAC (002165)	<p>Mortality</p> <ul style="list-style-type: none"> Sea lamprey Brook lamprey River lamprey Atlantic salmon Otter <p>Habitat degradation – changes in water quality:</p> <ul style="list-style-type: none"> Sea lamprey Brook lamprey River lamprey Atlantic salmon Otter <p>Habitat degradation – changes in hydrology/hydrogeology:</p> <ul style="list-style-type: none"> Sea lamprey Brook lamprey River lamprey Atlantic salmon Otter <p>Physical disturbance:</p> <ul style="list-style-type: none"> Sea lamprey Brook lamprey River lamprey Atlantic salmon Otter 	<p>Habitat loss</p> <ul style="list-style-type: none"> All QI features <p>Habitat degradation –</p> <p>Changes in water quality, changes in air quality, changes in hydrology/hydrogeology, spread of invasive alien species (IAS):</p> <ul style="list-style-type: none"> Sandbanks which are slightly covered by sea water all the time Estuaries Mudflats and sandflats not covered by seawater at low tide Coastal lagoons Large shallow inlets and bays Reefs Perennial vegetation of stony banks Vegetated sea cliffs of the Atlantic and Baltic coasts <i>Salicornia</i> and other annuals colonising mud and sand Atlantic salt meadows Mediterranean salt meadows Watercourses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> Common bottlenose dolphin Freshwater pearl mussel <p>Mortality:</p> <ul style="list-style-type: none"> Common bottlenose dolphin Freshwater pearl mussel <p>Physical disturbance:</p> <ul style="list-style-type: none"> Common bottlenose dolphin Freshwater pearl mussel 	N/A

European Site Name and Code	QI Features and Impact Pathways that have been Screened In for Appropriate Assessment	QI Features and Impact Pathways that Do Not Require Further Assessment	QI Features and Impact Pathways with Small Effect that would Lead to LSE with Other Projects
Barrigone SAC (000432)	Habitat loss <ul style="list-style-type: none"> Marsh fritillary Mortality <ul style="list-style-type: none"> Marsh fritillary 	Habitat loss <ul style="list-style-type: none"> <i>Juniperus communis</i> formations on heaths or calcareous grasslands Semi-natural dry grasslands and scrubland facies on calcareous substrates Limestone pavements Habitat degradation – changes in water quality, changes in air quality, changes in hydrology/hydrogeology, spread of invasive alien species (IAS): <ul style="list-style-type: none"> All QI features Physical disturbance: <ul style="list-style-type: none"> All QI features 	N/A
Special Protection Areas (SPAs)			
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (004161)	Mortality <ul style="list-style-type: none"> Hen harrier Physical disturbance <ul style="list-style-type: none"> Hen harrier 	Habitat loss <ul style="list-style-type: none"> Hen harrier Habitat degradation – changes in water quality, changes in air quality, changes in hydrology/hydrogeology, spread of invasive alien species (IAS): <ul style="list-style-type: none"> Hen harrier 	N/A
River Shannon and River Fergus Estuaries SPA			
	Habitat Degradation: changes in water quality <ul style="list-style-type: none"> Cormorant Whooper swan Light-bellied Brent goose Shelduck Wigeon Teal Pintail Shoveler Scaup Ringed plover Golden plover Grey plover 	Habitat loss <ul style="list-style-type: none"> All QI features Mortality <ul style="list-style-type: none"> All QI features Habitat degradation – changes in air quality, changes in hydrology/hydrogeology, spread of invasive alien species (IAS): <ul style="list-style-type: none"> All QI features 	Physical disturbance <ul style="list-style-type: none"> Cormorant Whooper swan Light-bellied Brent goose Shelduck Wigeon Teal Pintail Shoveler Scaup Ringed plover Golden plover Grey plover

European Site Name and Code	QI Features and Impact Pathways that have been Screened In for Appropriate Assessment	QI Features and Impact Pathways that Do Not Require Further Assessment	QI Features and Impact Pathways with Small Effect that would Lead to LSE with Other Projects
	<ul style="list-style-type: none"> • Lapwing • Knot • Dunlin • Black-tailed godwit • Bar-tailed godwit • Curlew • Redshank • Greenshank • Black-headed gull • Wetland and waterbirds 		<ul style="list-style-type: none"> • Lapwing • Knot • Dunlin • Black-tailed godwit • Bar-tailed godwit • Curlew • Redshank • Greenshank • Black-headed gull • Wetland and waterbirds

In order to take account of in-combination effects, plans, and projects that are completed, approved but uncompleted, or proposed (but not yet approved) should be considered in this context (European Commission, 2002).

River Fergus Estuaries SPA is the only European site that require assessment for in-combination effects due to the impact pathways for disturbance that would have an effect on QI species.

A search of the National Planning Application Database (NPAD) (DoHPLG 2025) and general web searches for major infrastructure projects and plans within 10km of the Proposed Project in the last five years has been undertaken to identify other projects that may result in cumulative impacts. 10km was considered to be a suitable search area to capture all projects and plans with the potential to act in-combination with the Proposed Project.

The majority of recent planning applications in the vicinity of the Proposed Scheme appear to be small scale domestic applications. A review of the National Planning Application Database (NPAD) identified 16 planning applications in close proximity to the Proposed Project which were deemed to have the potential for in-combination effects and therefore required further assessment.

- **Planning Application 191148 / PL91.307187:** LCCC – Permission for construction often number dwelling houses, access roadway, foul and surface water sewers and all ancillary site works. The planning report concluded that an Appropriate Assessment was not necessary for this proposal as the works would not have any significant effects on European sites.
- **Planning Application 197030:** LCCC – Extension for permission relating to application 15403. Permission for construction of an industrial unit, entrances, boundary walls/fencing, connections to public services including all associated site works. The planning report concluded that no Appropriate Assessment was necessary as the development would not pose any significant effects to the conservation status of any European sites.
- **Planning Application 21531 / 2460082:** LCCC – Permission for the construction of thirty-eight terraced and four semi-detached two storey houses and nine single storey retirement houses and 12 apartments in two three storey blocks along with associated site works. Planning app 2460082 sought a change to the permission for the construction of twelve apartments in a single 3-storey block in place of 12 apartments in two 3-storey blocks previously granted planning permission under ref. no. 21-531 and numbered 80-91. The planning report concluded that no Appropriate Assessment was necessary as the development would not pose any significant effects to the conservation status of any European sites.
- **Planning Application 228020:** LCCC – Permission for the construction consisting of two phases consisting of (a) Phase 1: The provision of 21 number residential units comprised of two storey and three storey dormer buildings (b) Phase 2: The provision of 10 no. residential units comprised of single storey and two storey buildings, with a unit mix comprised of four number one Bed units, six number two Bed units; (c) New road running north-west connecting the existing Sycamore Crescent estate with the proposed development, then returning around from the north to run southeast to service proposed units to the rear, including all associated footpaths and 37 number car parking spaces; (d) Hard landscaping including; bin stores, privacy strip to front gardens, rear garden walls, bicycle stands, installation of street lighting; (e) new public open space including soft landscaping, tree planting, street furniture, street lighting, footpaths; (f) Soft landscaping including planting and trees throughout; (g) Construction of and / or remedial works to boundaries with adjacent sites; (h) Construction of new water main, new foul and storm sewers to connect into existing drainage system, and surface water drainage systems including Suds measures; (i) Connection to public utilities; (j) All associated site works. An Appropriate Assessment Screening Report was prepared as part of the development. The report concluded that the proposed development was not likely to significantly impact the Lower River Shannon SAC, Askeaton Fen SAC or the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, alone or in-combination with other projects or plans.
- **Planning Application 22840:** LCCC – Permission for the construction of a residential development of one detached, sixteen semi-detached and forty terraced two-storey dwelling houses, thirty-six apartments in

six three-storey blocks and all associated site works, including access from Station Road. The planning report concluded that no Appropriate Assessment was necessary as the development would not pose any significant effects to the conservation status of any European sites due to the scale, nature and location of the development.

- **Planning Application 228013:** LCCC – Permission for the construction of ten number housing units in addition to ancillary site works comprising of a new vehicular junction (with the R521), an access road, services, footpaths, parking, boundary treatment and landscaping units. An Appropriate Assessment Screening Report was prepared as part of the development. The report concluded that the proposed development was not likely to significantly impact the Lower River Shannon SAC, River Shannon and River Fergus Estuaries SPA or the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, alone or in-combination with other projects or plans.
- **Planning Application 228019:** LCCC – Permission for the construction of the Limerick Greenway Hub @ Newcastle West. The proposed development will include provision of a public plaza, space for temporary bike hire facilities, car parking spaces, universal access parking, electric vehicle charging points, coach and mini bus parking facilities, additional public realm elements including benches, bins, bike stands, bike repair station, and finally the provision of a new signalized pedestrian and cycle crossing point on Station Road which will provide a safe connection from the existing Bishops Court trail to the Greenway Hub. An Appropriate Assessment Screening Report was prepared as part of the development. The report concluded that the proposed development was not likely to significantly impact the Lower River Shannon SAC, Askeaton Fen SAC or the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, alone or in-combination with other projects or plans.
- **Planning Application 238015:** LCCC – Permission for the construction of a services building at the Limerick Greenway Hub @ Newcastle West for commercial, community and tourism use. The building will include bike hire, coffee dock, toilets, store and services. Works to include all site development works for the building including utilities, landscaping and public realm around the building. This proposal is a continuation of the previously approved Part 8 Planning for a carpark, Ref No. 228019. In accordance with Article 120(1)(b)(i) of the Planning and Development Regulations 2001, as amended, the Local Authority has carried out a screening for environmental impact assessment of the proposal. Having regard to the information specified under Schedule 7A of the Planning and Development Regulations 2001, as amended, and based on an examination of the nature, size and location of the development, it is determined that there is no likelihood of significant effects on the environment arising from the proposed development.
- **Planning Application 237002:** LCCC – Extension for permission relating to application 17383. Permission for construction of 54 number dwelling houses, comprising of 12 detached dwellings, 34 semi-detached dwellings and eight terraced dwellings, together with all roads, services, landscaping and associated site works. The planning report concluded that no Appropriate Assessment was necessary as the development to pose any significant effects to the conservation status of any European sites due to the scale, nature and location of the development.
- **Planning Application 2360826:** LCCC – Permission for the construction of 14 residential units in total comprising of seven number two-storey terraced town houses and seven number single-storey terraced bungalows, demolition and removal of existing unfinished foundations, and associated site works. No Environmental Impact Statement was published as part of the development. Given the small scale and suburban location of this application, there is no potential for LSEs in-combination with the Proposed Project.
- **Planning Application 20598:** LCCC – Permission for the demolition of 3 no. terraced buildings, construction of 5 no. two storey terraced dwelling houses and 1 no. first floor apartment over proposed car park entrance, construction of car park to rear of proposed development along with connection to all public utility services with all associated site works. The planning report concluded that no Appropriate Assessment was necessary as the development to pose any significant effects to the conservation status of any European sites due to the scale, nature and location of the development.

- **Planning Application 2360956 / PL91.321600:** LCCC - Permission for the construction of 7 no. 'own door' apartment/dwelling units. The proposal will provide for a mix of 1- and 2-bedroom starter family and elderly friendly dwellings. Permission is also sought to construct new site entrance and boundary walls, connect to existing public services including all associated site development works. The planning report concluded that no Appropriate Assessment was necessary as the development to pose any significant effects to the conservation status of any European sites due to the scale, nature and location of the development.
- **Planning Application 2360216:** LCCC – Retention application for dwellinghouse nos. 102, 107 and 134-138 as partly constructed to various stage, where dwellinghouse nos. 102, 107 and 136 are detached and the remainder are semi-detached and for planning permission to complete the construction of dwellinghouse nos. 107 and 134-138, to demolish partly constructed dwellinghouse no. 102 and to construct a terrace of 4 two-storey houses between existing house nos. 99 and 103, along with all associated site works. The planning report concluded that no Appropriate Assessment was necessary as the development to pose any significant effects to the conservation status of any European sites due to the scale, nature and location of the development.
- **Planning Application 2460568:** LCCC – Permission for the demolition of the Red Setter Pub and out buildings and the construction of a terrace of 4 no. two storey, three bedoomed houses, a terrace of 6 no. two storey, three bedoomed houses and a terrace of 6 no. two storey, three bedoomed houses, terminating in a two and three storey block containing a duplex, three bedoomed apartment and a two bedoomed apartment over ground floor restaurant / café, hair/beauty salon, a fast food/take-away outlet and a bin and bicycle store and 20 no. car parking spaces and the landscaping and upgrading of the existing public open space as a public square and playground. The Appropriate Assessment and Natura Impact Statement for this project concluded that, in the absence of mitigation, there was potential for impact on the Lower River Shannon SAC via surface water pollution and disturbance. The report concluded that the proposed development was not likely to significantly impact the River Shannon and River Fergus Estuaries SPA, alone or in-combination with other projects or plans.
- **Planning Application 2360706 / 2360588:** LCCC – Permission for the construction of a residential development of 53 no. dwelling houses and all ancillary site works at Carrig Desmond, Churchtown Road, Newcastle West, Co. Limerick. The development comprises of 6 no. semi-detached 3 bed dwellings, 32 no. terraced 3 bed dwellings, and 15 no. terraced 2 bed dwellings and ancillary site works including landscaping, surface car parking and site services. The planning report concluded that no Appropriate Assessment was necessary as the development to pose any significant effects to the conservation status of any European sites due to the scale, nature and location of the development.
- **Planning Application 2460799:** LCCC – Permission for the demolition of the former Olympic Ballroom and the construction of two blocks of one to three storeys. Each proposed block contains 15 no. Apartments giving 30 no. apartments in total comprising 20 no. One Bedroom Apartments at ground floor level and 10 no. Two Bedroom Duplex Apartments at first and second floor level. Proposed ancillary works include single storey bin and bicycle stores, 30 no. parking spaces at grade, a landscaped communal open space between the two proposed blocks and upgrade works to the public footpath. The planning report concluded that no Appropriate Assessment was necessary as the development to pose any significant effects to the conservation status of any European sites due to the scale, nature and location of the development. At the time of writing, the status of this application is withdrawn.

In addition, one other road scheme was identified as having the potential to act in-combination with the Proposed Project.

- **The N21 Abbeyfeale Bypass Scheme:** LCCC - This project proposes a new bypass road along the N21 at Abbeyfeale to improve safety and reduce congestion on the N21. The Proposed Project has the potential to be undertaken in tandem with the N21 Abbeyfeale Bypass Scheme. This road scheme is approximately 11.3km from the Proposed Project. It is within a different river catchment and therefore there can be no potential for in-combination effects from pollution. There will be no in-combination effects on QI bird species relating to River Shannon and River Fergus Estuaries SPA, as there were no impact pathways

identified between that Scheme and the European site. Therefore, there is no potential for in-combination effects between this project and the Proposed Project.

Finally, the County Development Plan was identified as having the potential to act in-combination with the Proposed Project.

- **Limerick County Development Plan 2022-2028:** This plan sets out the Council's overall strategy for the proper planning and sustainable development of County Limerick. The Limerick County Development Plan 2022 – 2028 was subject to AA. The AA concluded that, with the implementation of mitigation measures, the Plan is not foreseen to give rise to any significant effects on designated European sites, alone or in-combination with other plans or projects. Therefore, there is no potential for in-combination effects between the Proposed Project and this Plan.

7.1 Conclusions of In-combination Effects

It is conceivable that the combined disturbance of QI bird species through multiple plans and projects could lead to LSE. There is suitable supporting foraging habitat within the Proposed Project area. As QI bird species may utilise these areas for foraging there is potential for disturbance impacts to these species. However, other plans and projects would be expected to have inconsequential impacts on QI bird species due to the large ranges of the bird species, and abundance of alternative supporting habitat, as well as the local nature of the other plans or projects. Any effects on QI bird species from the Proposed Project in combination with other projects and plans is likely to be ecologically inconsequential.

In light of the above information there is no potential for in-combination effects to undermine the integrity of any European sites from the Proposed Project and other plans or projects. There is therefore no requirement to undertake Appropriate Assessment for any impact pathways to effects on any QIs of European sites other than those identified above for pathways from the Proposed Project alone.

8. Screening Statement and Conclusion

This AA Screening report presents the objective scientific information required to inform a robust and complete screening for AA of the potential impacts of the proposed N21 Newcastle West Bypass Road Scheme (the Proposed Project) on European sites. The conclusion of the Screening for AA is that Likely Significant Effects cannot be excluded, alone or in combination, from the following impact pathways to effects on QIs of European sites:

- Lower River Shannon SAC
 - Mortality:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
 - Habitat degradation – changes in water quality:
 - Sea Lamprey
 - Brook Lamprey
 - River Lamprey
 - Atlantic salmon
 - Otter
 - Habitat degradation – changes in hydrology/hydrogeology:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
 - Physical disturbance:
 - Sea lamprey
 - Brook lamprey
 - River lamprey
 - Atlantic salmon
 - Otter
- Barrigone SAC
 - Direct habitat loss:
 - Marsh fritillary
 - Mortality:
 - Marsh fritillary
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
 - Mortality:

- Hen harrier
- Physical disturbance:
 - Hen harrier
- River Shannon and River Fergus Estuaries SPA
 - Habitat degradation – changes in water quality:
 - All QI features

A Stage 2 AA of the Proposed Project is therefore required for the pathways to LSE above, which will comprise a detailed assessment of the potential for adverse effects on the integrity of European sites.

Detailed information to inform the AA for the Proposed Project will be presented in a NIS which will be submitted at planning to enable the Competent Authority to undertake an AA in respect of the Proposed Project.

9. References

CIEEM (2017). Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2021). Good Practice Guidance for Habitats and Species.

Department of Environment, Heritage and Local Government (DoEHLG) (2010). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities.

Department of Housing, Planning and Local Government (DoHPLG) (2021). National Planning Application Map Database (NPAD) and Map Viewer.

Environmental Protection Agency (EPA) rivers and water quality data Water Framework Directive (WFD) status online at <https://gis.epa.ie/EPAMaps/> [accessed January 2024].

European Commission (2000). Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg.

European Commission (2002). Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC

European Commission (2007). Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.

European Commission (2018). Managing Natura 2000 sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC.

European Commission (2021). Guidance document on the strict protection of animal species of Community interest under the Habitats Directive.

Fossitt, J. A. (2000). A Guide to Habitats in Ireland. The Heritage Council.

Fowles, A.P. (2005). Habitat quality mapping for marsh fritillary populations. Staff Science Report. 05/5/1. Countryside Council for Wales.

Highways Agency (2007). Design Manual for Roads and Bridges - HA 207/07 Volume 11, Section 3, Part 1: Air Quality, s.l.: Highways Agency.

Inland Fisheries Ireland (IFI) Inland Fisheries Ireland Data Hub (arcgis.com) [accessed January 2024].

IFI (2022) *Report on Salmon Monitoring Programmes 2021: Funded under the Salmon Conservation Fund.* IFI/2022/1-4590. Dublin, Inland Fisheries Ireland.

National Biodiversity Data Centre (NBDC) (2025). Protected and invasive species data online at <http://www.biodiversityireland.ie/> [accessed January 2025].

NPWS (2012a). Conservation Objectives: Lower River Shannon SAC 002165. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2012b). Conservation Objectives: River Shannon and River Fergus Estuaries SPA 004077. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

NPWS (2013) *Site Synopsis: Lower River Shannon SAC*. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, and the Gaeltacht.

NPWS (2015) *Hen Harrier Conservation and the Agricultural Sector in Ireland*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2018). Conservation Objectives: Askeaton Fen Complex SAC 002279. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2019a). The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

NPWS (2019b). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

NPWS (2019c). The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.

NPWS (2019d). Conservation Objectives: Barrigone SAC 000432. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2022). Conservation Objectives: Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA 004161. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2023). Conservation Objectives: Curraghchase Woods SAC 000174. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

National Roads Authority (NRA) (2010). Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads.

O'Connor W. (2006). A baseline survey of juvenile lamprey populations in the River Feale catchment. *Irish Wildlife Manuals*, No. 22. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland

Office of the Planning Regulator (OPR) (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01.

Ruddock, M., Wilson-Parr, R., Lusby, J., Connolly, F., J. Bailey, and O'Toole, L. (2024) The 2022 National Survey of breeding Hen Harrier in Ireland. *Irish Wildlife Manuals*, 147. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Dublin.

Smith, G.F., O'Donoghue, P., O'Hora, K. and Delaney, E. (2011). Best Practice Guidelines for Habitat Survey and Mapping. The Heritage Council.

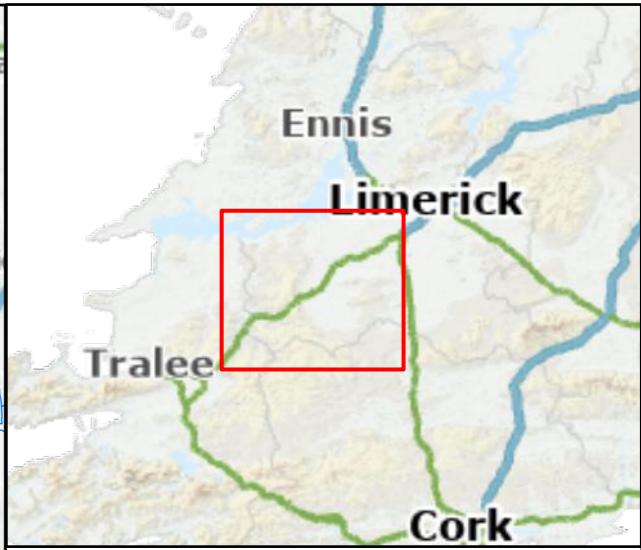
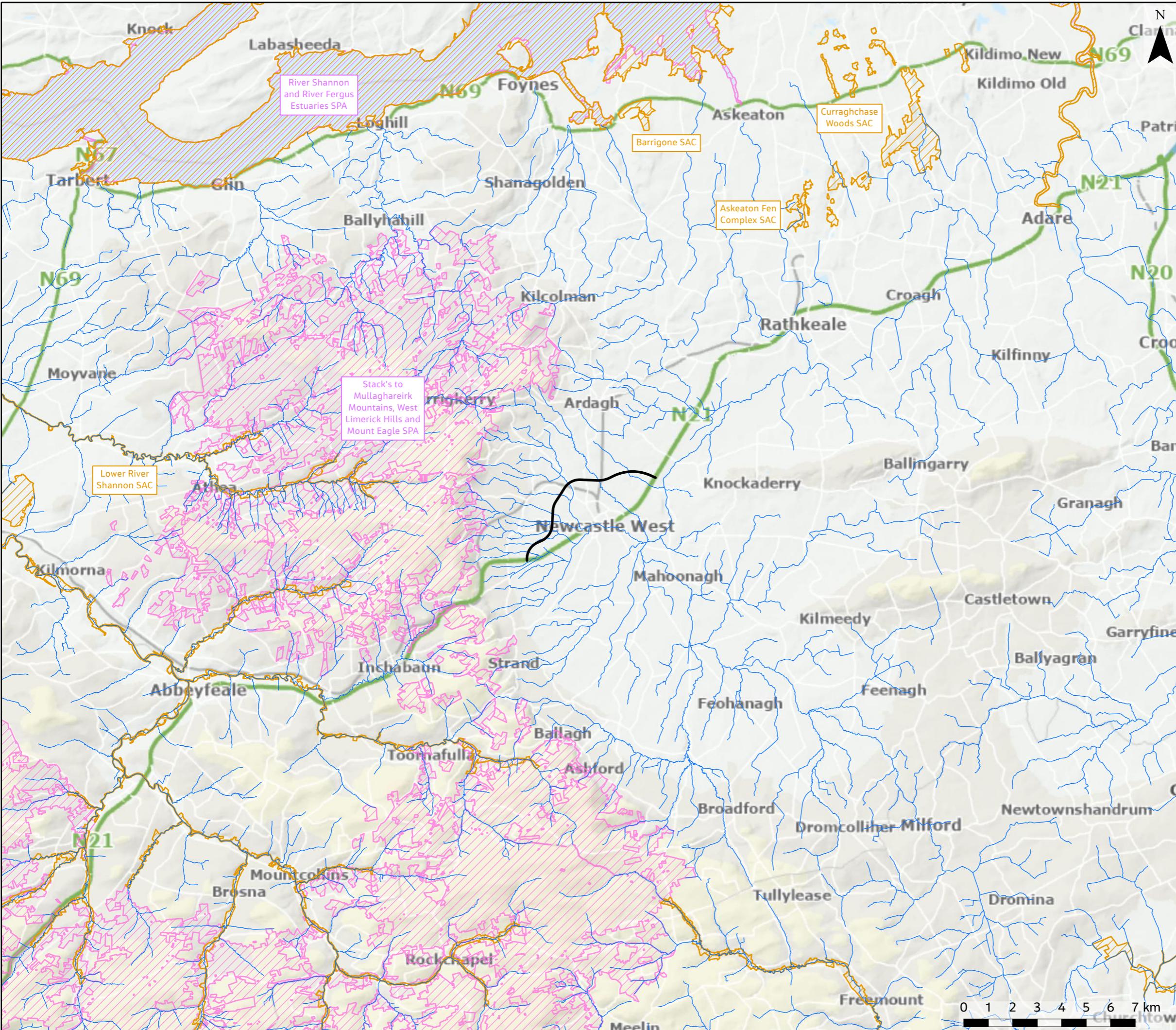
Transport Infrastructure Ireland (TII) (2021a). The Management of Invasive Alien Plant Species on National Roads – Standard.

Transport Infrastructure Ireland (TII) (2021b). The Management of Invasive Alien Plant Species on National Roads - Technical Guidance.

Zimmermann, K., Fric, Z., Jiskra, P., Kopeckova, M., Vlasanek, P., Zapletal, M., and Konvicka, M. (2011). Mark-recapture on large spatial scale reveals long distance dispersal in the Marsh Fritillary, *Euphydryas aurinia*. *Ecological Entomology*, 36(4), pp. 499–510.

Appendix A. Figures

Figure 1: Proposed Project Alignment in Relation to European Sites



Legend

- Proposed Project Centreline
- River Network Order
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)

00	May 2025	INITIAL FOR CLIENT	MK	PB	MP	KC
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

Jacobs

Termini Building, 2nd Floor, Arkle Road, Sandyford, Dublin, D18 C9C5, Ireland.
www.jacobs.com

Client
    

Project
N21 NEWCASTLE WEST ROAD SCHEME

Drawing Title
FIGURE 1
PROPOSED PROJECT ALIGNMENT IN RELATION TO EUROPEAN SITES

Drawing Status DRAFT

Scale @ A3 1:150,000 DO NOT SCALE

Jacobs No. 32110800

Client No.

Drawing No. (Sheet 1 of 1)

© Copyright 2025 Jacobs Engineering Ireland Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement.

© National Mapping Division of Táití Éireann. All rights reserved. Licence number CYAL50252415.