Planning and Environmental Consultants

Appropriate Assessment Screening Report and Natura Impact Statement

Markievicz Bridge Scour Repairs, Sligo

DOCUMENT DETAILS

Client:	**PUNCH Engineering**
Project Title:	**Markievicz Bridge Scour Repairs, Sligo**
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Planning and Environmental Consultants

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01	D1	2025/03/19	EF	PR
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1. INTRODUCTION

1.1 Background

MKO has been appointed to provide the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment for the riverbed and bridge masonry scour repairs, as well as the de-vegetation works on the Markievicz bridge in Sligo Town, County Sligo.

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Where it cannot be excluded that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site then same shall be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives. The current project is not directly connected with, or necessary for, the management of any European Site. Consequently, the project has been subject to the Appropriate Assessment Screening process.

This Natura Impact Statement (NIS) has been prepared in accordance with the European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018) as well as the Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010) and the Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin 7, Ireland OPR (2021).

1.2 Statement of Authority

A baseline ecological survey was undertaken on 13th of October 2022 by Cillian Burke (BSc. Env.) and Patrick O'Boyle (B.Sc., M.Sc.) of MKO. Additional surveys were carried out on the 17th of September 2024 and the 1st of October 2024 by David Culleton (B.Sc., M.Sc.), Laura McEntegart (BSc.), Nora Szijarto (B.Sc., M.Sc.) and Cormac Roberts. A riverbed habitat assessment was carried out on the 13th of March 2025 by Emily Fair (BSc., MSc.) and Aran von der Geest Moroney (BSc.).

This report has been prepared by Cuan Feely and Emily Fair. Cuan is a Graduate Ecologist with MKO. Emily Fair is an Ecologist with MKO who has 4 years' experience with ecological assessment. This report has been reviewed by Pat Roberts (BSc.) who has over 20 years' experience in ecological consultancy and has undertaken numerous assessments covering a wide range of projects including wastewater treatment plants, wind farms, road infrastructure and housing developments.

1.3 Methodology

1.3.1 Appropriate Assessment Process

Screening - The purpose of the screening stage is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, either alone or in combination with other plans or projects, is likely to have significant effects on a European site in view of the site's conservation objectives.

There is no necessity to establish such an effect; it is merely necessary for the Competent Authority to determine that there may be such an effect. The need to apply the precautionary principle in making any key decisions in relation to the tests of Appropriate Assessment has been confirmed by the case law of the Court of Justice of the European Union (CJEU). Plans or projects that have no appreciable effect

on a European site may be excluded. The threshold at this first stage is a very low one and operates as a trigger in order to determine whether AA of a project is required. Therefore, where significant effects are likely, uncertain or unknown at screening stage, an AA of the project will be required.

Appropriate Assessment - This stage of the process is a focused and detailed examination, analysis and evaluation by the Competent Authority of the implications of the plan or project, either alone or in combination with other plans and projects, on the integrity of a European site in view of that site's conservation objectives. Case law has established that such an AA, to be lawfully conducted must:

> (i) identify, in the light of the best scientific knowledge in the field, all aspects of the proposed project which may, by itself or in-combination with other plans or projects, affect the conservation objectives of the European site;
>
> (ii) contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps; and
>
> (iii) may only include a determination that the proposed project will not adversely affect the integrity of any relevant European site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of potential adverse effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to stage three (assessment of alternative) and, if necessary, stage four (IROPI[1]).

1.3.2 Ecological Survey Methodologies

1.3.2.1 Multidisciplinary Ecological Walkover Surveys

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM, 2018).

The multi-disciplinary walkover surveys comprehensively covered the entire study area for features and locations of ecological significance. The survey was carried out in accordance with NRA *Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna* on National Road Schemes (NRA, 2009). Surveys were carried out on the 13th of October 2022, 17th of September 2024, 1st of October 2024 and the 12th of March 2025. The survey area covered the Markievicz Bridge itself in addition to the habitats in its immediate vicinity. An otter survey was undertaken along the Garavogue Riverbanks both upstream and downstream of the Proposed Works.

Habitats were identified in accordance with the Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000). Plant nomenclature for vascular plants follows 'New Flora of the British Isles' (Stace, 2010), while mosses and liverworts nomenclature follows 'Mosses and Liverworts of Britain and Ireland - a field guide' (British Bryological Society, 2010).

1.3.2.2 Invasive Species

During the multi-disciplinary walkover surveys, a search for non-native invasive species was undertaken within the Site. The survey focused on the identification of invasive species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (As Amended) (S.I. 477 of 2015).

[1] *IROPI - 'imperative reasons of overriding public interest', the test found in Article 6(4) of the Habitats Directive.*

1.3.2.3 Otter Surveys

Otter surveys were conducted as per NRA (2009) guidelines. This involved a search for all otter signs e.g. spraints, scat, prints, slides, trails, couches and holts. In addition to the width of the rivers/ watercourses, a 10m riparian buffer (both banks) was considered to comprise part of the otter habitat (NPWS, 2009). The dedicated otter survey also followed the guidance as set out in NRA (2008) 'Guidelines for the Treatment of Otters Prior to the Construction of National Roads Schemes' and following CIEEM best practice competencies for species surveys (CIEEM, 2012). Otter surveys were undertaken along the banks of the Garavogue River within 150m both upstream and downstream of the Proposed Works.

1.3.2.4 Aquatic Baseline Surveys

Aquatic Baseline Surveys were undertaken on the 13th of March 2025 by Aran von der Geest Moroney (B.Sc.) and Emily Fait (BSc., MSc.). The specific surveys carried out are detailed below.

1.3.2.4.1 *River Habitat Assessment*

An aquatic habitat assessment was undertaken along the Garavogue River on the 13th of March 2025 within the immediate proximity of the Proposed Works, focussing on the proposed working area within the riverbed, in order to determine the riverine habitat types present within and in the vicinity of the Proposed Works. The survey design and methodologies were derived from current ecological best practice guidance documents. Habitats were classified in accordance with the national habitat classification system used in Ireland - A Guide to Habitats in Ireland (Fossitt (2000)

The site was assessed in terms of the following variables:

- Physical waterbody characteristics (e.g., channel width depth)
- Any historic or current hydromorphological channel or bank modifications
- Bank profiles, including bank height and composition
- Substrate type, listing substrate fractions in order of dominance
- Flow type, by proportion of pool, riffle and glide
- In-stream macrophyte and aquatic bryophytes occurring and the prominence of each (DAFOR scale)
- Water clarity and colouration
- Riparian vegetation composition

The survey was devised to gather ecological baseline information including any habitat features that could potentially support protected Qualifying Interest species associated with EU designated sites within the wider area, namely Lough Gill SAC, with a focus on Lamprey species (*Lamperta spp., Petromyzon spp.)* and Salmon (*Salmo salar*), as well as all other aquatic fauna that may be present within the river. In addition, the survey had regard to the potential presence of problematic invasive alien species with an emphasis on those species listed on the 'Third Schedule' of Regulations 49 & 50 of the Birds and Natural Habitats Regulations 2011. The assessments have regard to the NRA guidance document - Guidelines on management of noxious weeds and non-native invasive plant species on national roads. National Roads Authority (NRA, 2010).

During the site visit, any additional information on other species within the site was recorded, as relevant, in order to provide a complete baseline understanding of the Proposed Works area.

1.3.2.4.2 *Fisheries Habitat Assessment*

An assessment/appraisal of the riverine habitats was undertaken to determine the potential for watercourses within and in the vicinity of the Site to support fish species including salmonids, lamprey spp. and European eel among other fish species likely to utilise the watercourses within the study area.

Fisheries habitat assessments were conducted utilising elements of the following methodologies and literature to characterise the watercourse:

- Environment Agency's 'River Habitat Survey in Britain and Ireland Field Survey Guidance Manual 2003' (EA, 2003)
- Irish Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000).
- 'Channels & Challenges. Enhancing Salmonid Rivers'. Irish Freshwater Fisheries Ecology & Management Series (O'Grady, 2006)
- 'Ecology of the Atlantic Salmon' (Hendry & Cragg-Hine, 2003)
- Life Cycle Unit method (Kennedy, 1984; O'Connor & Kennedy, 2002)
- 'Ecology of the River, Brook, and Sea Lamprey' (Maitland, 2003)
- NPWS Irish Wildlife Manuals lamprey surveys (O'Connor, 2004; O'Connor, 2006; and O'Connor, 2007)

1.3.2.4.3 *Biosecurity Measures*

Biosecurity measures which were implemented followed IFI Biosecurity Protocol for Field Survey Work, (IFI, 2010). Due to increasingly prevalent spread of crayfish plague in Ireland and to prevent the spread of aquatic invasive species all equipment was scrubbed and cleaned prior to and post works with Virkon Aquatic. Additionally, all equipment was cleaned with Virkon Aquatic between survey sites to minimise the potential for the spread of invasives between watercourses/ survey sites. Any instance of invasive species recorded was recorded and conveyed to IFI.

1.3.3 Desk Study

The desk study undertaken for this assessment included a thorough review of the available ecological data associated with the screened-in European Sites within the likely zone of impact of the Proposed Development. Sources of data included the following:

- Review of National Park and Wildlife Service (NPWS) Conservation Objectives supporting documents, site synopsis, standard data forms and supporting documents for European Designated Sites,
- Review of online web-mappers: NPWS, Environmental Protection Agency (EPA),
- Review of the publicly available NBDC web mapper,
- Review of NPWS Article 17 metadata and GIS database.
- Review of available online Inland Fisheries Ireland (IFI) Data.

2. DESCRIPTION OF THE PROPOSED WORKS

2.1 Site Location

The Proposed Works is located at the Markievicz Bridge (traditionally known as the 'New Bridge') located at Bridge Street, Sligo Town (Grid Ref: G 69328 35945). The Markievicz bridge spans the Garavogue River, located in the centre of Sligo Town and utilised both by both pedestrians and motorists. The bridge was erected in 1648, and it connects the north and south sides of Sligo across the Garavogue River. The bridge is located within a built urban area, with buildings, footpaths and roads immediately adjoining the bridge on either side of the Garavogue River.

The Proposed Works on the Garavogue River is located within Lough Gill SAC (001976), 240m upstream from Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (000627) and 700m upstream from Cummeen Strand SPA (004035).

The site location is shown below in Figure 2-1

2.2 Characteristics of the Proposed Works

2.2.1 Need for the Proposed Works

The Markievicz Bridge was built in 1648 and has been an important crossing point through the middle of Sligo Town for both pedestrians and vehicles. Over the years, significant damage has occurred to the bridge as a result of scour damage to the bridge piers.

The channel bed has been eroded in the vicinity of the bridge as a result of contraction scour, causing a significant hydraulic jump at the upstream face of the bridge. The piers have also been undermined to varying degrees as a result of the local scour. The extent of the scour damage has potential to result in a decline in structural integrity of the Markievicz Bridge.

The scour damage can be attributed to the sudden expansion of water as it leaves the confines of the bridge arches. The sudden expansion of water can cause a 'hydraulic jump' as water transitions from high velocity and low depth to low velocity and high depth. The hydraulic jump causes turbulence and an associated large dissipation of energy which has induced scour damage to the riverbed. Once scour holes are formed, the increased turbulence they cause can lead to further scour damage on the riverbed.

Detailed inspections of the Markievicz have determined that the existing vegetation growth is not currently causing structural damage, however if proper routine maintenance is not regularly undertaken, advanced vegetation growth has potential to impact the structural integrity of a structure. Therefore, the removal of the vegetation before it progresses to this stage is in the best interests of the structural condition of the bridge.

The following sections detail the proposed methodologies for repairing the riverbed scour damage, the scour damage to the bridge abutments as well as the de-vegetation works on the exterior of the bridge.

2.2.2 Description of the Project

2.2.2.1 Site Establishment

Access to the existing piers and riverbed will be from the R870 regional road which crosses the Garavogue River via the Markievicz Bridge. Due to the nature of the works, appropriate signage will be provided at the works areas to alert traffic and pedestrians to the construction activities and related traffic at the works locations.

Temporary traffic lights will be set up on the southern end of Markievicz Bridge, adjacent to the Rockwood Parade and John F. Kennedy Parade. A construction site compound will be established at the John F. Kennedy Parade which will comprise of temporary car parking, deliveries area, material storage, welfare facilities, and a mobile crane as required.

All repair works will be in accordance with CIRIA C742 Manual on scour at bridges and other hydraulic structures, including supplementary guides, and all in-stream works will follow the IFI (2016) *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters*.

2.2.2.2 Dry Working Area Establishment

A dry working area will be established spanning half of the width of the Garavogue River at a time. The total dry working area will be approximately 980m^2 in total and will extend approximately 6m upstream of the bridge and approximately 15.5m downstream of the bridge.

The dry working area will be in place for the duration of the works (approximately 6 months total; approximately 3 months for each half of the proposed works) in order to carry out all of the structural masonry pier scour repairs, the riverbed scour repairs as well as de-vegetation on the bridge masonry surface. Once one section (approximately half of the bridge structure) has been completed, the dry working area will be removed and a new dry working area will be established on the other side of the river, ensuring that water will always be allowed to flow freely around the dry working area.

The following methodology will be used to create the dry working area within the Garavogue River:

- All works will be carried out in accordance with IFI (2016) *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters*
- A mobile crane will be set up in the construction site compound at street level with full access to the works areas and delivery areas.
- The dry working area will span approximately half of the river at any given time.
- Tonne bags filled with clean inert sand will be lowered into the section of the river to be dewatered.
    - The tonne bags will be double stacked and arranged to form the walls of the dewatered area.
    - An impermeable, plastic membrane will be used to seal off the area.
    - Smaller sandbags will also be used to fully seal the inside of the dewatering area from excessive water ingress, and to weigh down the impermeable plastic membrane.
- The area will be electrofished
- A sump will be dug within the proposed dry working area.
- Water will be pumped from inside the dewatering area to pumps located in the construction site compound area along the south riverbank.
- Dewatering of the dry working area will be carried out by pumping the water out of the sump in the dry working area, through the pump system located within the construction site compound, which will be fitted with a silt buster.

- The pumped water from the dry working area will be pumped through the silt buster into the area confined by a silt curtain within the Garavogue River. The mouth of the return pipe will be located behind the silt curtain within the river.

Once the dry working area has been established and is free form water ingress, the structural masonry pier scour repairs, riverbed scour repairs and the de-vegetation works will commence.

2.2.2.3 Structural Masonry Pier Scour Repairs on the Markievicz Bridge

The proposed repairs on the pier footings of the Markievicz Bridge will be carried out in order to reverse the current and prevent future local scour affecting the structural integrity of the bridge by extending the pier footings further below ground level.

The proposed bridge pier scour repairs will involve the following steps:

- All works will be carried out within the dry working area as outlined in Section 2.2.2.2 above.
- Loose materials will be removed from beneath the masonry piers where the scour damage has occurred within the riverbed. The area will be hand excavated to competent material.
- A concrete letterbox framework will be installed at the edge of the hand-excavated area up to the competent material retained on the masonry pier.
- The area within the letterbox framework up to the competent material will be filled with high early strength self-compacting concrete.
- The concrete formwork will then be removed and the concrete letterbox protrusion remaining will be cut off
- The riverbed immediately adjoining the masonry repairs letterbox framework will be repaired and the details can be found below in Section 2.2.2.4.

The Structural Masonry Pier Scour Repairs methodology can be found below in Figure 2-2.

2.2.2.4 Riverbed Scour Repairs

The proposed scour repairs on the riverbed beneath the Markievicz Bridge and immediately downstream of the bridge will be carried out in order to reverse the current contraction scour and delay its recurrence by rehabilitating the channel bed in the vicinity of the bridge.

The total works area is approximately 980m^2, however it should be noted that scour repairs will be required within a fraction of this total area. Scour repairs will only take place in areas of the riverbed that have scoured away creating scour holes. These locations can be seen in Figure 2-4.

Scour damage upstream of the Markievicz Bridge are relatively minor and shallow. This area will require minimal works and will only require re-spreading of the existing riverbed materials where scour damage has occurred. The materials will be re-spread to natural riverbed finish levels See Figure 2-3 below.

The riverbed scour repairs on the Garavogue River beneath the bridge arches and downstream of the bridge will involve the following steps:

The riverbed scour repairs on the Garavogue River will involve the following steps:

- All works will be carried out within the dry working area as outlined in Section 2.2.2.2 above.
- A 1.5 tonne electric mini digger will be used to infill the existing scour holes on the riverbed.

- A geotextile membrane layer will be placed along the riverbed
- Granular fill material will be used to in-fill the larger scour holes
- Rock rip-rap will be placed on top of the granular material to in-fill the larger scour holes
    - 250mm rock rip-rap will be used
- Where riverbed material has deposited on the riverbed next to scour holes, this material will be re-spread over the rock rip-rap, where possible.
- The riverbed will be finished to natural levels

2.2.2.5 De-vegetation

De-vegetation works will be undertaken while a dry working area is in place within the riverbed. The entire masonry surface area of the bridge will be de-vegetated, cleaned and repointed.

All vegetation will be removed from the surface of the bridge by hand. Steam and/or abrasive cleaning will then be undertaken on the stone masonry of the bridge, followed by extensive mortar joint re-pointing using lime mortar where it is required.

The de-vegetation works will be carried out by fully scaffolding the bridge elevations within the dewatered areas.

Map Legend

- SIte Location
- Markievicz Bridge Boundary
- Extent of dewatered area
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Garavogue River
- WFD Sub-Catchment
- WFD Catchment

Drawing Title

Site Location

Project Title

Markievicz Bridge Scour Repairs

Drawn By	Checked By
EF	SM
Project No.	Drawing No.
220943	Figure 2-1
Scale	Date
1:50,000	04/03/2025

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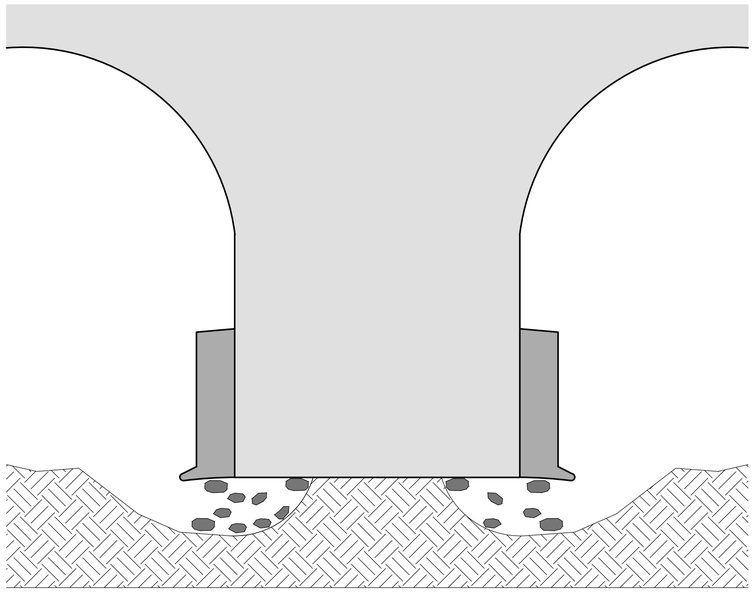
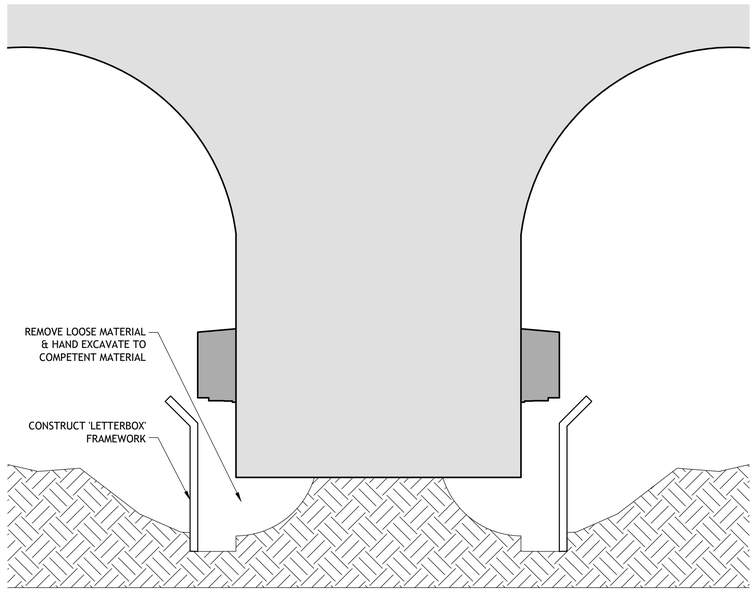
NOTES:
1. ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS ONLY.

LEGEND

- MASONRY PIER
- CONCRETE SKIRT
- EXTENT OF SCOUR



EXISTING PIER
SCALE 1:20



PROPOSED STEP 1
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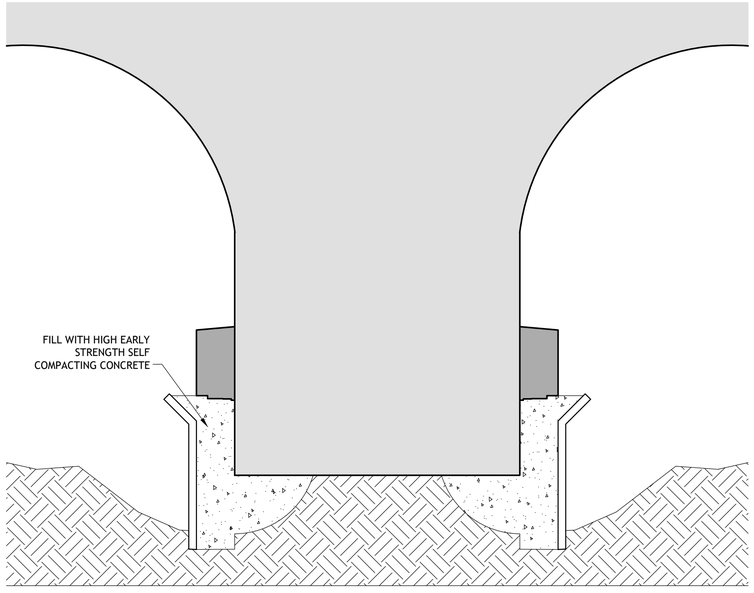

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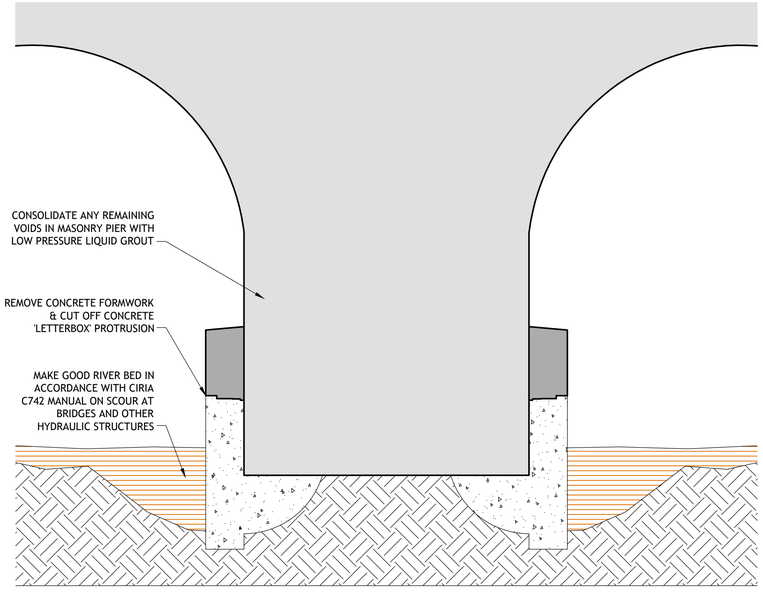

PROPOSED STEP 3
SCALE 1:20

EXISTING PIER LAYOUT
SCALE 1:20

1:100
2m 0 2m 4m 6m 8m 10m

1:20
400mm 0 400mm 800mm 1200mm 1600mm 2000mm

BUILDING INFORMATION MODELLING (BIM) IS EN ISO 19650-2:2018
NSAI Certified

Rev	Amendment	By	Date
C01	ISSUED FOR PLANNING	CS	2025-04-01

Client: SLIGO COUNTY COUNCIL

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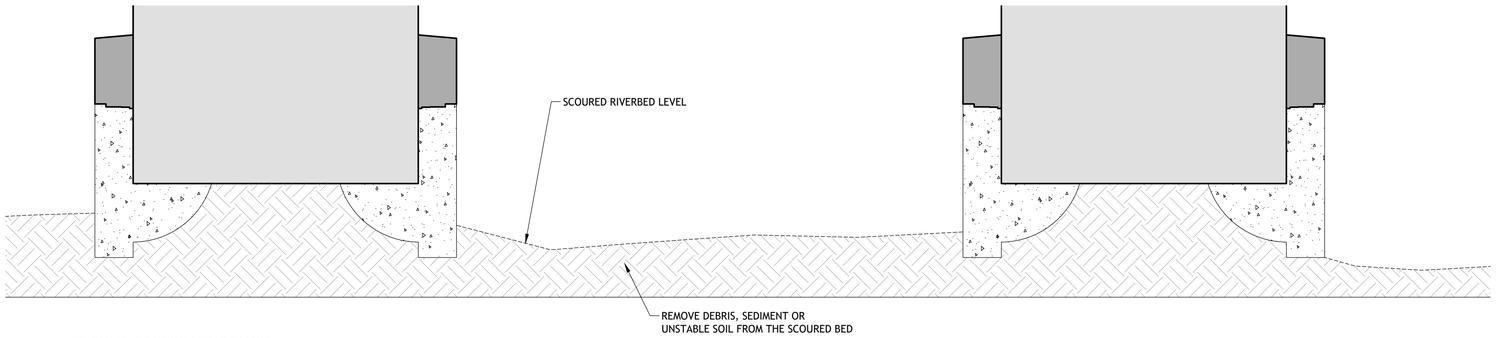
Project: MARKIEVICZ BRIDGE REHABILITATION				
Title: EXISTING STRUCTURAL PIER SCOUR REPAIRS				
Drawn: F McGibbon	Date drawn: NOVEMBER 2024	Technician Check: PJ Mulcahy	Engineer Check: Kevin D O'Riordan	Approved: Kevin D O'Riordan
Project No: 224138	Model Ref: 224138-PUNCH-XX-XX-M2-C-0201		Drawing Status: A0 (Planning)	
Scale @ A1: AS SHOWN	Document No: 224138-PUNCH-XX-XX-DR-C-0201			Revision No: C01



TYPICAL SECTION THROUGH
RIVERBED SCOUR REPAIR WORKS
- PROPOSED STEP 1

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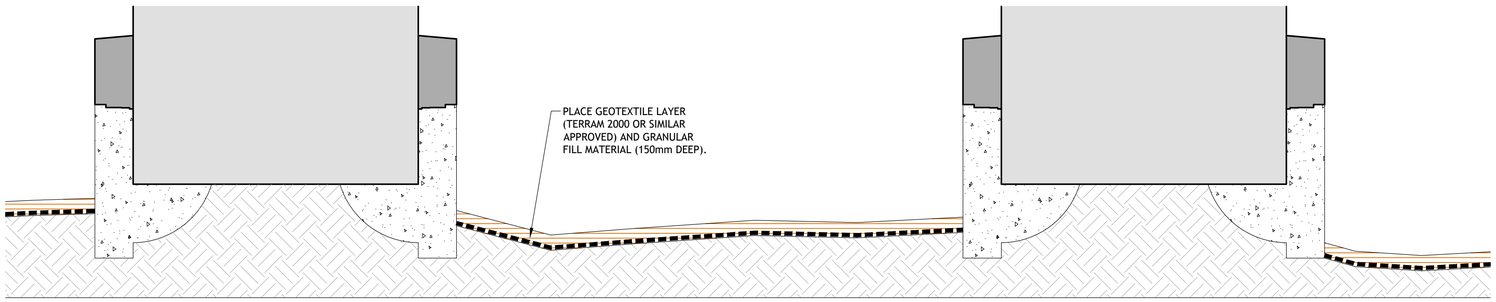

TYPICAL SECTION THROUGH
RIVERBED SCOUR REPAIR WORKS
- PROPOSED STEP 2

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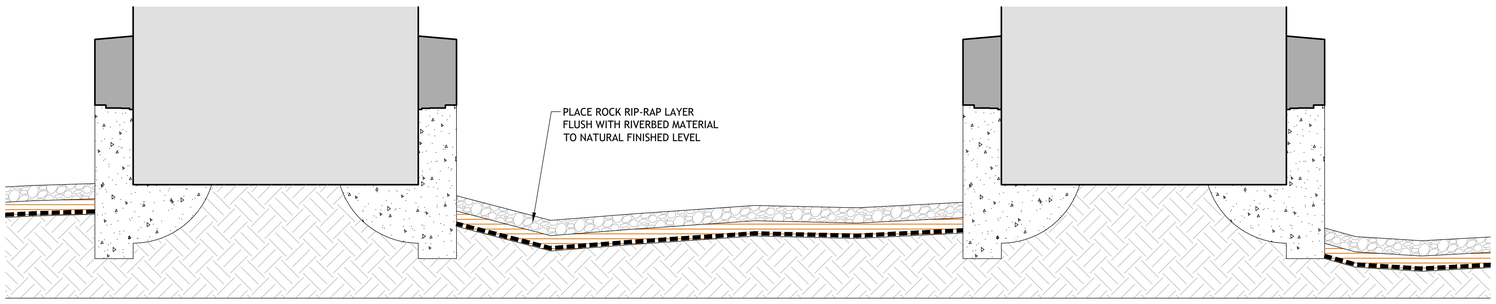

TYPICAL SECTION THROUGH
RIVERBED SCOUR REPAIR WORKS
- PROPOSED STEP 3

SCALE 1:20

REQUIREMENTS FOR BEDDING GRAVEL	
GRADINGS	d50 = 50mm
SHAPE	≤ 3.0
PROPORTION OF CRUSHED OR BROKEN SURFACES	≤ 50%
PARTICLE DENSITY	2.5
PLASTICITY INDEX	NON PLASTIC
LOS ANGELES COEFFICIENT	LA ≤ 35% (PER IS EN 1097-2)
SLAKE DURABILITY	> 90%
RESISTANCE TO WEAR	60 TO 80%

REQUIREMENTS FOR ROCK ARMOUR	
GRADINGS	d50 = 250mm
SHAPE	≤ 2.5
PROPORTION OF CRUSHED OR BROKEN SURFACES	90%
PARTICLE DENSITY	2.5
PLASTICITY INDEX	NON PLASTIC
LOS ANGELES COEFFICIENT	LA ≤ 35% (PER IS EN 1097-2)
SLAKE DURABILITY	>90%
RESISTANCE TO WEAR	60 TO 80%

NOTES:

1. ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS ONLY.
3. USE NON-WOVEN GEOTEXTILE WITH A MINIMUM TENSILE STRENGTH OF [X] kN/m AND PERMEABILITY OF [Y] M/S.
4. OVERLAP ADJACENT GEOTEXTILE SHEETS BY A MINIMUM OF 0.5M AND SECURE IN PLACE BEFORE PLACING THE GRANULAR LAYER.
5. GEOTEXTILE SHALL BE TERRAM 2000 OR SIMILAR APPROVED.
6. THE GEOTEXTILE FABRIC SHALL BE PLACED DIRECTLY ON THE PREPARED RIVERBED, FREE OF DEBRIS AND SHARP OBJECTS.
7. GRANULAR FILL MATERIAL TO BE PLACED ON THE GEOTEXTILE IN A LAYER 150MM DEEP.
8. THE GRANULAR FILL LAYER SHALL BE PLACED EVENLY OVER THE GEOTEXTILE TO PREVENT PUNCTURING AND PROVIDE A STABLE BEDDING FOR THE RIPRAP.
9. GRANULAR FILL MATERIAL TO MEET SPECIFICATION REQUIREMENTS SHOWN IN BOX 1.
10. RIPRAP SHALL BE LAID ONTO OF THE GRANDULAR FILL MATERIAL TO A DEPTH MATCHING THE SURROUNDING RIVER BED LEVELS.
11. RIPRAP TO MEET SPECIFICATION REQUIREMENTS SHOWN IN BOX 2.
12. RIPRAP SHALL BE PLACED GRADUALLY, AVOIDING FREE FALL TO PREVENT DAMAGE TO UNDERLYING LAYERS
13. SCOUR HOLES LESS THAN 400MM DEEP TO BE FILLED WITH GRANULAR FILL MATERIAL ONLY. SURROUNDING GRAVEL MATERIAL WITHIN THE RIVERBED CAN BE USED WHERE POSSIBLE.

BUILDING INFORMATION MODELLING (BIM)
I.S EN ISO 19650-2:2018
NSAI Certified

Rev	Amendment	By	Date
C01	ISSUED FOR PLANNING	CS	2025-04-01

Client: SLIGO COUNTY COUNCIL

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Project: MARKIEVICZ BRIDGE REHABILITATION				
Title: RIVERBED SCOUR REPAIRS				
Drawn: F McGibbon	Date drawn: NOVEMBER 2024	Technician Check: PJ Mulcahy	Engineer Check: Kevin D O'Riordan	Approved: Kevin D O'Riordan
Project No: 224138	Model Ref: 224138-PUNCH-XX-XX-M2-C-0202		Drawing Status: A0 (Planning)	
Scale @ A1: AS SHOWN	Document No: 224138-PUNCH-XX-XX-DR-C-0202			Revision No: C01

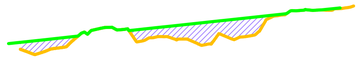
NOTES:
1. ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.
2. DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS ONLY.

LEGEND:

DENOTES EXTENT OF FILL MATERIAL

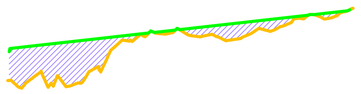
DENOTES BRIDGE PIER / ABUTMENT

FILL LEGEND				
MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR	AREA	VOLUME
0.00	0.20		262.241m2	67.184m3
0.20	0.40		138.524m2	30.165m3
0.40	0.60		56.842m2	11.536m3
0.60	0.80		27.575m2	3.012m3
0.80	1.00		4.287m2	0.198m3



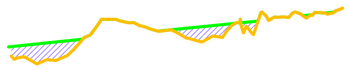
Proposed Levels	1.539	1.754	1.869	2.152
Existing Levels		1.697	1.675	2.152
Chainage	00.000	10.000	20.000	28.154

SECTION A



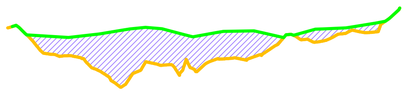
Proposed Levels	1.459	1.678	1.901	2.115
Existing Levels	0.935	1.594	1.721	2.115
Chainage	00.000	10.000	20.000	28.179

SECTION B



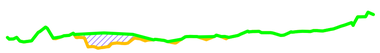
Proposed Levels	1.418	1.815	1.834	2.051
Existing Levels	1.272	1.815	1.632	2.051
Chainage	00.000	10.000	20.000	27.263

SECTION C



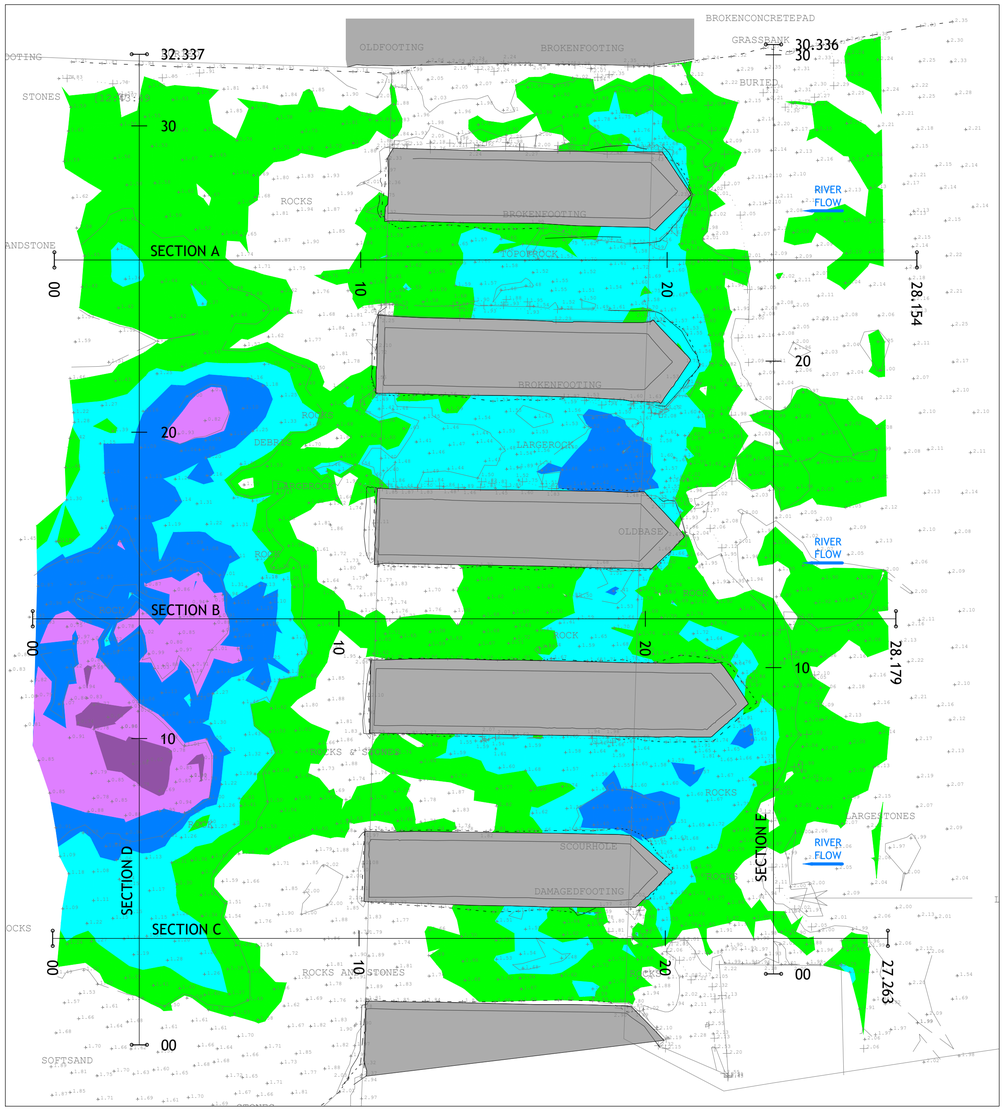
Proposed Levels	1.616	1.600	1.567	1.694	1.940
Existing Levels	1.616	0.809	1.137	1.550	1.940
Chainage	00.000	10.000	20.000	30.000	32.337

SECTION D



Proposed Levels	1.929	2.054	2.092	2.388
Existing Levels	1.929	1.901	2.092	2.388
Chainage	00.000	10.000	20.000	30.336

SECTION E



RIVERBED SCOUR LAYOUT
SCALE 1:100

1:100
2m 0 2m 4m 6m 8m 10m

1:250
5m 0 5m 10m 15m 20m 25m

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BUILDING INFORMATION MODELLING (BIM) I.S EN ISO 19650-2:2018 NSAI Certified

Rev	Amendment	By	Date
C01	ISSUED FOR PLANNING	CS	2025-04-01

Client: SLIGO COUNTY COUNCIL

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Project: MARKIEVICZ BRIDGE REHABILITATION				
Title: RIVERBED SCOUR REPAIR SECTIONS				
Drawn: F McGibbon	Date drawn: NOVEMBER 2024	Technician Check:	Engineer Check: Kevin D O'Riordan	Approved: Kevin D O'Riordan
Project No: 224138	Model Ref: 224138-PUNCH-XX-XX-M2-C-0203		Drawing Status: A0 (Planning)	
Scale @ A1: AS SHOWN	Document No: 224138-PUNCH-XX-XX-DR-C-0203			Revision No: C01

3. CHARACTERISTICS OF THE RECEIVING ENVIRONMENT

3.1 Description of the Baseline Ecological Environment

3.1.1 Desk Study

3.1.1.1 Baseline Water Quality

The baseline hydrology of the site and the surrounding area has been reviewed on the EPA map viewer (https://gis.epa.ie/EPAMaps/). With respect to regional hydrology, the Proposed Works is located within the Bonet_SC_030 WFD sub-catchment and the Sligo Bay (35) WFD catchment. The Markievicz Bridge is located on the Garavogue River (Garavogue_010), which forms part of Lough Gill SAC [001976]. The Garavogue Estuary (IE_WE_470_0100) is located 230m downstream of the Proposed Works.

The Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627] is located within the Garavogue Estuary, which begins approximately 240m downstream of the Proposed Works. The Cummeen Strand SPA [004035] is also located within the Garavogue Estuary, 700m surface water distance downstream of the Proposed Works.

The 3rd cycle river waterbody risk for the Garavogue River is recorded as 'At Risk'. Under the River Waterbody WFD Status 2016-2021, the Garavogue River is recorded as 'Poor'. The 3rd cycle transitional Waterbody risk for the Garavogue Estuary is recorded as 'Under Review'. Under the Transitional Waterbody WFD Status 2016-2021, the estuary is recorded as 'Moderate'. The Carrowmore East groundwater body WFD 3rd cycle risk is recorded as 'At Risk' and the groundwater body WFD Status 2016-2021 is recorded as 'good'.

The Proposed Works is not located within or hydrologically connected to any *Margaritifera* Sensitive Areas. The closest *Margaritifera* Sensitive Area is the Moy Catchment located 20km to the southwest of the Proposed Works.

One Q-value was recorded immediately upstream of the Proposed Works. No Q-Values have been recorded downstream of the development. The details of these Q values are located in Table 3-1 below.

Table 3-1 Garavogue_010 WFD Waterbody Status Attributes

Water body: Garavogue River (Garavogue_010)	
River Waterbody Code	IE_WE_35G010200
Protected Area	Yes
WFD Risk (3rd Cycle)	At Risk
WFD Status (2016-2021)	Poor
Sub-catchment	Bonet_SC_030

Pressures	Forestry, Urban Run-off
Q-Values	
187m upstream (Sligo: The Mall [Station code: RS35G010200])	Q3, Poor (2021)

3.1.1.2 Garavogue River - NPWS Data

The Garavogue is a relatively short river of 2km in length, and flows from Lough Gill through Sligo town into Sligo Bay (Garavogue Estruary). The Garavogue River system begins in Glenade Valley, from where the Bonet River flows south, through the Dartry Mountains before flowing into Lough Gill near Dromahair. It then flows out of the western end of Lough Gill and through Sligo Town before flowing to sea through Sligo Harbour (within the Garavogue Estruary), past Coney Island and into Sligo Bay. The Garavogue Estuary (Sligo Bay - IE_WE_470_0000), located approximately 230m downstream of the Proposed Works, is a designated as a shellfish area.

As mentioned in Section 3.1.1.1 above, the Garavogue River which flows through the Proposed Works is located within Lough Gill SAC [001976]. This SAC is designated for a number of terrestrial habitats fringing Lough Gill itself, as well as the aquatic habitat [3150] Natural Eutrophic Lakes recorded, which is recorded within Lough Gill. This SAC is also designated for a number of mobile aquatic species including [1092] White-clawed Crayfish *(Austropotamobius pallipes),* [1095] Sea Lamprey (*Petromyzon marinus*), [1096] Brook Lamprey (*Lampetra planeri*), [1099] River Lamprey (*Lampetra fluviatilis),* [1106] Atlantic Salmon (*Salmo salar)* [1355] and Otter *(Lutra lutra).*

White-clawed Crayfish has been recorded within the Bonet River, which is approximately 17km upstream of the Proposed Works. According to the SSCO document for this SAC[2], the Garavogue River within Sligo Town is likely utilised by the designated Lamprey and Salmon species for spawning and/or migration.

The Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627] is located approximately 240m downstream of the Proposed Works. This SAC is also designated for a number of aquatic species including 1095] Sea Lamprey (*Petromyzon marinus*) and [1099] River Lamprey (*Lampetra fluviatilis),* as well as [1365] Harbour Seal *(Phoca vitulina).* The Cummeen Strand SPA [004035] is also located downstream of the Proposed Works, via approximately 700m surface water distance. It is designated for the SCI species [A046] Brent Goose Branta (*bernicla hrota),* [A130] Oystercatcher (*Haematopus ostralegus),* [A162] Redshank (*Tringa tetanus)* as well as the supporting aquatic habitat [A999] Wetlands.

3.1.1.2.1 *Tidal Data*

The Garavogue river is tidally influenced, and the EPA operates a hydrometric gauge on the Garavogue River, called the *New Bridge Gauge No. 35012* to provide outflow information from Lough Gill (Grid Ref: G 69396 35963). The station is located in Sligo town approximately 50m upstream of the Markievicz bridge. It should be noted that there is a weir with sluice gates 300m upstream of the station, which are operated on a regular basis to control the water levels of Lough Gill. As a result, this can cause spikes in the hydrograph. The station can also be tidal at spring tides. The Marine Institute also operate a tidal gauge 'Sligo', located within Sligo Bay (Grid Ref: G 62172 40269), over 8km downstream of the Proposed Works.

3.1.1.3 Inland Fisheries Ireland (IFI)

There is no Inland Fisheries Ireland (IFI) survey data specific to the stretches of the Garavogue River where the Proposed Works is located. The Proposed Works and Lough Gill SAC are both located within the Sligo Bay WFD Catchment (35) and the Bonet_SC_030 WFD Sub-catchment. Lough Gill is located approximately 3.9km upstream of the Proposed Works, and this lake was surveyed for three years (2008, 2011 and 2017). Data on the Bonet River, upstream of Lough Gill, as well as the Garavogue Estuary, approximately 230m downstream of the Proposed Works, is also provided below.

3.1.1.3.1 *Lough Gill*

Lough Gill is a large lake, with a surface area of 1,401ha and a maximum depth of 31m. Lough Gill is located approximately 3.9km upstream from the Proposed Works. According to the IFI '*Fish Stock Survey of Lough Gill, July 2017',* the lake was surveyed on three sperate occasions during the years 2008, 2011 and 2017. The three surveys recorded a total of nine fish species and one hybrid within the lake. Species recorded include Perch (*Perca fluviatilis*), Roach (*Rutilus rutilus*), Bream (*Abramis brama*), Brown Trout (*Salmo truta*), Pike (*Esox Lucius),* European Eel (*Anguilla anguila*), Salmon (*Salmo salar*), Flounder (*Platichthys flesus*), Stone Loach (*Platichthys flesus*) and Roach x Bream (*Rutilus rutilus* x *Abramis brama*). Perch (*Perca fluviatilis*) and Roach (*Rutilus rutilus*) were the most common fish species within Lough Gill on all three of the surveys.

3.1.1.3.2 *Bonet River*

The Bonet River flows into the southeastern end of Lough Gill and is located upstream of the Proposed Works though Lough Gill. This river has been surveyed over a two year period (2010 and 2015). The survey locations were located 14.2km upstream from the Proposed Works. Species recorded during these surveys include Brown trout (*Salmo truta*), European Eel (*Anguilla anguila*), Gudgeon (*Gobio gobio*), Lamprey spp. (*Lampetra* spp.), Minnow (*Phoxinus Phoxinus*), Perch (*Perca fluviatilis*), Salmon (*Salmo salar*), Stone Loach (*Barbatula barbatula*) and Three-spined Stickleback (*Gasterosteus aculeatus*).

3.1.1.3.3 *Garavogue Estuary*

Garavogue Estuary is located 230m downstream from the Proposed Works. The estuary drains almost completely at low tide leaving a small narrow channel and is strongly influenced by the marine environment. It covers an area of 8.82km^2. The substrate is dominated by soft mud and extensive mud flats are present at low tide. Eleven species were recorded during the surveys for the estuary which were carried out in 2008. Species recorded during the survey include Flounder (*Platichthys flesus*), 2-Spotted Goby (*Gobiusculus flavescens*), Sand Goby (*Pomatoschistus minutes*), Common Goby (*Pomatoschistus microps*), European Eel (*Anguilla anguilla*), Long-Spined Sea-Scorpion (*Taurulus bubalis*), 5-Bearded Rockling (*Ciliata Mustela*), Pogge (*Agonus cataphractus*), Pollack (*Pollachius pollachius*), Lesser Spotted Dogfish (*Scyliorhinus canicular*) and 3-Spined Stickleback (*Gasterosteus aculeatus*).

3.1.1.4 Baseline Flora and Fauna

Table 3-2 below provides data obtained from the National Biodiversity Data Centre (NBDC) database in relation to Qualifying Interest and Special Conservation Interest Species that are associated with the European Sites located within the vicinity of the Proposed Works in the hectad G63.

Table 3-2 QI and SCI species within the hectad G63

QI Species	Hectad
Otter (*Lutra lutra*)	G63
Sea Lamprey (*Petromyzon marinus*)	G63
Harbour Seal (*Phoca vitulina*)	G63
Narrow-mouthed Whorl Snail (*Vertigo angustior*)	G63
SCI Species	**Hectad**
Brent Goose (*Branta bernicla*)	G63
Oystercatcher (*Haematopus ostralegus*)	G63
Redshank (*Tringa tetanus*)	G63

Table 3-3 below provides data from the NBDC database in relation to Third Schedule invasive species recorded within the hectad G63.

Table 3-3 Third Schedule invasive species within hectads G63

Species	Hectad
Canadian Waterweed (*Elodea canadensis*)	G63
Himalayan Balsam (*Impatiens glandulifera*)	G63
Japanese Knotweed (*Fallopia japonica*)	G63
Rhododendron (*Rhododendron ponticum*)	G63
Zebra Mussel (*Dreissena polymorpha*)	G63
American Mink (*Mustela vison*)	G63
Wireweed (*Sargassum muticum*)	G63
Giant Hogweed (*Heracleum mantegazzianum*)	G63
Spanish Bluebell (*Hyacinthoides hispanica*)	G63

3.2 Results of Ecological Surveys

3.2.1 Habitat Surveys

The Markievicz Bridge is a historic stone masonry structure, classified as **buildings and artificial surfaces (BL3)** (Plate 3-1)**.** Habitats immediately surrounding the bridge include footpaths, roads and commercial and residential buildings (BL3), with a sparse treeline **(Treeline – WL2)** along road/footpath verges in the southeast and northwest. Species include Sycamore (*Acer pseudoplatanus*), Willow (*Salix* spp.) and Ash (*Fraxinus excelsior*). An area of **scrub (WS1)** is located approximately 85m east (upstream) of the Proposed Works on the right-hand bank of the Garavogue River.

The extent of the Garavogue River within Sligo Town is categorised as a **tidal river (CW2).** The river is approximately 35m wide at the location of the Proposed Works. The depth of the river fluctuates as a result of tidal influences and a weir structure located upstream of the Proposed Works (Plate 3-2 and Plate 3-3), as described above in Section 3.1.1.1 above.

Vegetation growth present on the surface of the bridge structure includes Maidenhair spleenwort *(Asplenium trichomanes),* Hart's-tongue fern *(Asplenium scolopendrium),* Ivy-leaved Toadflax *(Cymbalaria muralis),* Ivy *(Hedera spp.).* Willowherbs *(Epilobium spp.)* and the non-native invasive species Butterfly bush *(Buddleja davidii)* are also present growing on flat surfaces within the bridge piers.

Four streetlights are located directly on the bridge structure itself, and a set of traffic lights are present on the south end of the bridge. Additional streetlights can be found along the right-hand bank and the left-hand bank of the Garavogue River both upstream and downstream of the Markievicz Bridge (Plate 3-1).

The non-native species Winter Heliotrope *(Petasites fragrans)* was found on the right-hand bank upstream of the Proposed Works. The Third Schedule (European Communities (Birds and Natural Habitats) Regulations (S.I. 477 of 2011)) species Zebra mussel *(Dreissena polymorpha)* was recorded within the proposed works area in the Garavogue River.

Plate 3-1 Markievicz bridge (BL3) from the south bank of the Garavogue River (facing northeast). Downstream view of the Proposed Works.

Plate 3-2 The Garavogue River (CW2), upstream of the Markievicz Bridge facing downstream

Plate 3-3 Garavogue River (CW2) with high water levels

Plate 3-4 Garavogue River (CW2) at low tide

3.2.2 River Habitat Assessment

3.2.2.1 Upstream of the Markievicz Bridge

The following section describes the habitat upstream of the Markievicz Bridge within the Proposed Works footprint in the Garavogue River. The Garavogue River within the vicinity of the Proposed Works is categorized as a tidal river (CW2).

Properties of the watercourse at this location are provided in Table 3-4 below and a representative photograph of the survey location is shown in Plate 3-5.

Table 3-4 Properties of the watercourse upstream of the Markievicz Bridge within the Proposed Works footprint

Properties	Record			
Average Depth (m)	0.2 – 0.8m			
Average Bank Width (m)	35m			
Wet width (m)	35m			
Flow	Moderate			
Color	Slightly brown			
Clarity	Clear			
Bank height (m)	**LHB:**	2-3m	**RHB:**	2-3m
Dominant Substrates	30% Boulder 20% Cobble 65% Fine (2-8mm) and Coarse (8-32mm) Gravel			
Substratum Condition	Loose			

Plate 3-5 Representative photograph of the Garavogue River upstream of the Markievicz Bridge

Plate 3-6 River channel upstream of the Proposed Works

The watercourse upstream of the Markievicz Bridge had a moderate flow and velocity with sections of riffle, pool and glide. The water was clear with a slight brown coloration. Siltation was low across the channel with occasional deposits of silt located in deeper pool section, along the banks and in the interstitial spaces between boulders and cobbles. Submerged and emergent macrophytes were common with approximately 50% percentage cover, including *Myriophyllum spicatum, Ranunculus spp.*, *Fontinalis antipyretica*, with small quantities of filamentous green algae. The substrate of the watercourse upstream of the bridge was dominated by fine and coarse gravels, with a lesser quantity of boulders and cobbles. A higher percentage of gravels was found on the right-hand side of the river (approx. 70%) and lesser on the left-hand bank (approx. 55%).

The right-hand bank (RHB) and left-hand banks (LHB) upstream of Markievicz Bridge both consisted of modified banks consisting of man-made retaining walls classified as Buildings and artificial surfaces (BL3). Some patches of riparian vegetation were present approximately 90m upstream of the proposed works area on the RHB, consisting of scrub (WS1) with Common reed *(Phragmites australis)* and Willows *(Salix spp.)* growing within the river. No vegetation growth was present on the LHB upstream of the bridge, however a sparse treeline was present within the footpath adjoining the riverside walk. Further upstream of the proposed works area, residential buildings have been built up to the edge of the riverbank. Approximately 350m upstream of the Markievicz Bridge is the John Fallon footbridge with an existing weir.

3.2.2.2 Downstream of the Markievicz Bridge

The following section describes the habitat downstream of the Markievicz Bridge within the Proposed Works footprint in the Garavogue River. The Garavogue River within the vicinity of the Proposed Works is categorized as a tidal river (CW2).

Properties of the watercourse at this location are provided in Table 3-5 below and a representative photograph of the survey location is shown in Plate 3-7 and Plate 3-8.

Table 3-5 Properties of the watercourse downstream of the Markievicz Bridge within the Proposed Works footprint

Properties	Record			
Average Depth (m)	0.2 - 1.0m			
Average Bank Width (m)	35m			
Wet width (m)	35m			
Flow	Moderate to fast, glides and unbroken standing waves in areas			
Color	Slightly brown			
Clarity	Clear			
Bank height (m)	**LHB:**	2-3m	**RHB:**	2-3m
Dominant Substrates	40% Boulder 35% Cobble 15% Fine (2-8mm) and Coarse (8-32mm) Gravel 10% Sand and fine Silts			
Substratum Condition	Loose			

Plate 3-7 Representative photograph of the Garavogue River downstream of the Markievicz Bridge

Plate 3-8 View across the channel downstream of the Markievicz Bridge

The watercourse downstream of the Markievicz Bridge had a moderate-fast flow with areas of riffle, glide, pool and unbroken standing waves. The water was clear with a slight brown coloration. Siltation was low across the channel with occasional deposits of silt located in deeper pool section, along the banks and in the interstitial spaces between boulders and cobbles. Submerged and emergent macrophytes were present including *Myriophyllum spicatum, Ranunculus spp.*, *Fontinalis antipyretica*, with small quantities of filamentous green algae, but not as common as the upstream stretches. The substrate of the watercourse downstream of the bridge was dominated by cobbles and boulders with gravels found surrounding the larger substrate The substrate at the LHB consisted of a large area of gravel, sand and silt. This depositional area within the watercourse extended approximately 5m from the LHB into the watercourse.

The right-hand bank (RHB) and left-hand banks (LHB) downstream of Markievicz Bridge both consisted of modified banks consisting of man-made retaining walls classified as Buildings and artificial surfaces (BL3). The RHB approximately 30m downstream of the Proposed Works footprint consisted of a gravel/muddy bank with Willows *(Salix spp.)*, reeds and grasses. Mature trees were found growing within the footpaths on the LHB. The RHB downstream of the bridge is largely made up of man-made structures with sparsely planted trees (treeline – WL2) along the footpaths.

3.2.2.3 River Habitat Underneath the Markievicz Bridge Arches

The following section describes the habitat beneath the existing arches of the Markievicz Bridge within the Proposed Works footprint in the Garavogue River. A representative photograph of the survey location is shown in Plate 3-9.

Plate 3-9 Representative photograph of the Garavogue River beneath the Markievicz Bridge

Riverbed substrate beneath the bridge was dominated by remnant masonry stone, boulders and cobbles, with course gravels and small areas of fine gravels present within the interstitial spaces between boulders and cobbles. The remainder of the riverbed under the bridge consisted of the masonry abutments, all of which demonstrated moderate to significant scour damage. Depth of water under each arch varied across the channel with the arches at the banks being the shallowest. Deeper pools were consistently present at the downstream end of the bridge.

3.2.3 Fisheries Habitat Assessment

3.2.3.1 Upstream of the Markievicz Bridge

Within the proposed works area, spawning habitat for salmonids, sea lamprey and river lamprey was considered to be good upstream of the bridge due to moderate to fast flowing waters, a large proportion of loose fine and large gravels which lamprey and salmonids could utilize to build redds, and a smaller presence of large boulders/cobbles for lamprey to anchor to. (Figure 3-1)

Nursery habitat within the works area upstream of the bridge was considered good for salmonids due to the variability in flow patterns from riffle to glide, well oxygenated waters and the presence of instream submerged vegetation for shelter and refuge. Nursery habitat for lamprey species was considered

moderate within the works area upstream of the bridge due to limited areas of sandy and silty deposits located only in small amounts at the riverbanks.

Holding habitat for salmonids was considered moderate upstream of the bridge within the works area due to the presence of occasional deeper pools near the LHB and in the channel. The works area upstream of the bridge provides moderate habitat for European eel due to the presence of boulders throughout the channel offering refuge and deeper pool areas along the LHB.

It should be noted that the proposed works area only contains a very small percentage of the available good habitat within the river. Further upstream and outside of the proposed works area, there are large areas of suitable salmonid and lamprey spawning gravels, salmonid nursery habitat, sandy and silty deposits providing good lamprey nursery habitat and deep pools with occasional overhanging riparian woody vegetation providing good holding habitat for salmonids and good habitat for European eel.

Additional Survey Recordings

While undertaking the fisheries assessment at this location, Grey Wagtails *(Motacilla cinerea)* were recorded utilising the RHB.

The Third Schedule (European Communities (Birds and Natural Habitats) Regulations (S.I. 477 of 2011)) species Zebra mussel *(Dreissena polymorpha)* was recorded within the proposed works area in the Garavogue River.

3.2.3.2 Downstream of the Markievicz Bridge

The majority of the habitat downstream of the Markievicz Bridge within the proposed works area consists of approximately 50% Boulder and 35% Cobble substrates with the remaining substrate consisting predominantly of fine gavels. This substrate is too coarse and compacted to provide significant suitable spawning habitat for lamprey species or salmonids and is therefore considered poor spawning grounds for lamprey or salmonid species. (Figure 3-1)

A large gravel, sand and silt bed is present from the edge of the LHB to the first bridge pier (Approximately 4m of riverbed in width), which provides good lamprey nursery habitat. The concrete platform located upstream of this depositional area as well as the gradient of the river has resulted in conditions for the natural accumulation of finer substrate along the LHB. Nursery habitat for salmonids is considered poor-moderate due to the overall deeper waters downstream of the bridge. However, some areas of the channel presented ample instream submerged vegetation and riffle habitat resulting in transitional areas of riffle to glide where nursery age salmonids may utilize. This habitat is located within the proposed dry working area, however of the proposed riverbed scour repairs will be undertaken within this habitat area.

A historic weir was recorded approximately 200-250m downstream, with an existing fish passage. This is located entirely outside of the proposed working area.

Additional Survey Recordings

The Third Schedule (European Communities (Birds and Natural Habitats) Regulations (S.I. 477 of 2011)) species Zebra mussel *(Dreissena polymorpha)* was recorded within the proposed works area in the Garavogue River.

3.2.3.3 Underneath the Markievicz Bridge Arches

The habitat beneath the bridge arches is assessed as poor for lamprey and salmonid spawning due to the predominantly course substrate consisting of large masonry stones, cobbles and boulders. Although some fine sediments have deposited where the piers have scoured and in between the cobbles, boulders and masonry stones, it is unlikely that these areas would provide significant supporting spawning habitat.

Nursery habitat for salmonids underneath the bridge was assessed as poor, and nursery habitat for lamprey was assessed as poor due to lack of significant suitable nursery silt beds.

3.2.4 Faunal Surveys

3.2.4.1 Otter Survey

No signs of otter, including holts, slides, couches, prints, spraints or feeding remains, were found during the survey. However, Otter is a QI designated species of Lough Gill SAC [001976] and therefore it is likely that the Garavogue river is utilised by the QI designated population of Otters for commuting/foraging.

Map Legend

- Extent of Proposed De-watered Area
- Suitable Nursery Habitat
- Good Spawning Habitat
- Poor Spawning Habitat
- Buildings and artificial surfaces (BL3)

N

Drawing Title
Fisheries Habitat Assessment Map

Project Title
Markievicz Bridge Scour Repairs

Drawn By	Checked By
EF	PR
Project No.	Drawing No.
220943	Figure 3-1
Scale	Date
1:625	27/03/2025

MKO
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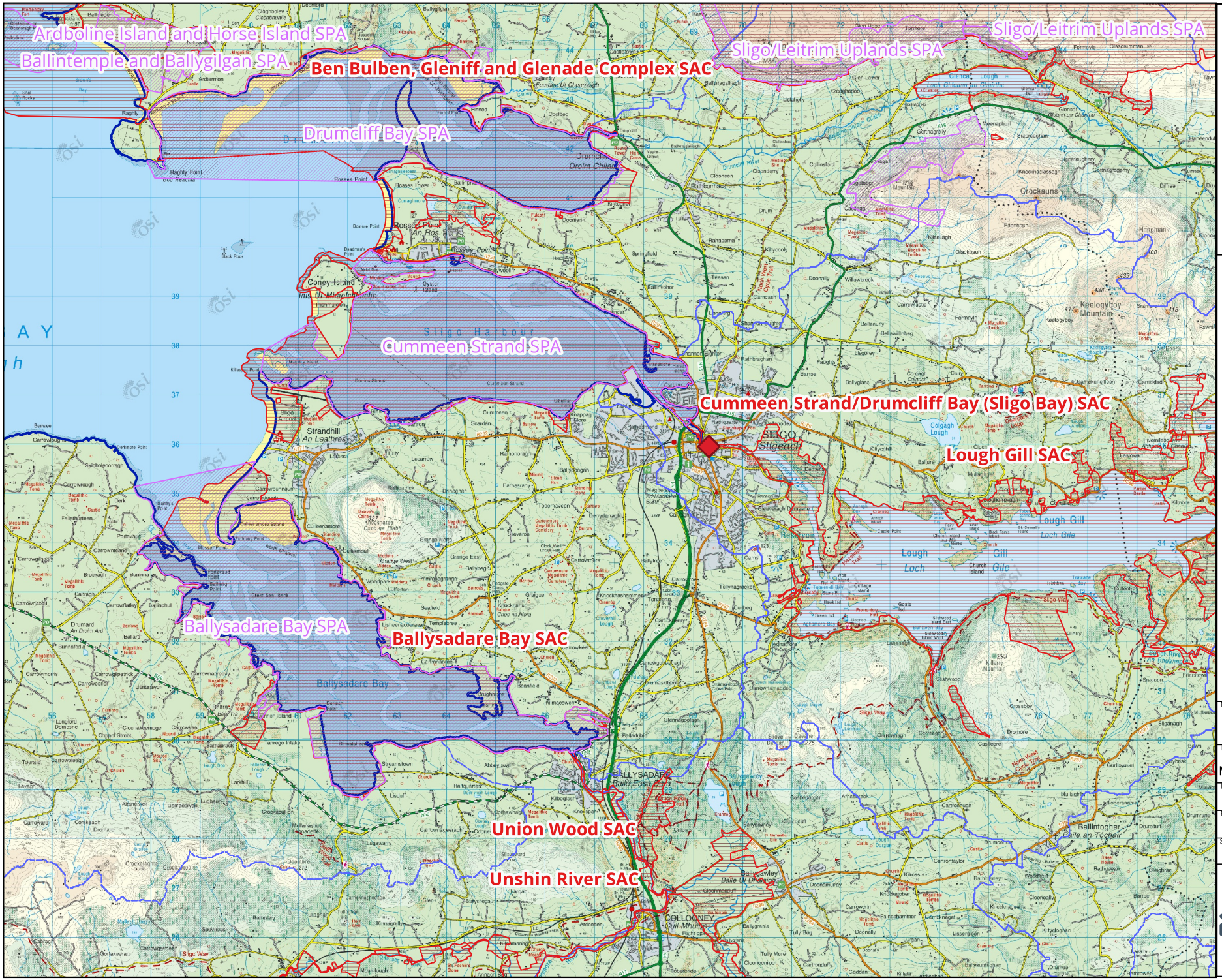
4. STAGE 1 – APPROPRIATE ASSESSMENT SCREENING

4.1 Identification of Relevant European Sites

The following methodology was used to establish any European Sites upon which there is a potential for a likely significant effect to occur either individually or in combination with other plans and projects as a result of the Proposed Works:

- Initially the most up to date GIS spatial datasets for European designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie).
- All European Sites that could potentially be affected were identified using a source-pathway - receptor model. To provide context for the assessment, European Sites surrounding the Proposed Works are shown on Figure 4-1. Information on these sites according to the site-specific conservation objectives is provided in Table 4-1. Sites that were further away from the Proposed Works were also considered and, in this case, no complete source-pathway-receptor chain for significant effect was identified for any other European Site.
- The catchment mapping was used to establish or discount potential hydrological connectivity between the site of the Proposed Works and any European Sites. The hydrological catchments are also shown in Figure 4-1.
- In relation to Special Protection Areas, in the absence of any specific European or Irish guidance in relation to such sites, the Scottish Natural Heritage (SNH) Guidance, '*Assessing Connectivity with Special Protection Areas* (SPA)' (2016) was consulted. This document provides guidance in relation to the identification of connectivity between Proposed Works and Special Protection Areas. The guidance takes into consideration the distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects.
- Table 4-1 provides details of all relevant European Sites as identified in the preceding steps and assesses the potential for likely significant effects on each.
- The assessment considers any likely direct or indirect impacts of the Proposed Works, both alone and in combination with other plans and projects, on European Sites by virtue of criteria including the following: size and scale, land-take, distance from the European Site or key features of the site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operation and decommissioning were considered in this assessment.
- The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report'
- Where potential pathways for Likely Significant Effect are identified, the site is included within the Likely Zone of Influence and further assessment is required within the NIS.
- The potential for the Proposed Works to result in cumulative impacts on any European Sites in combination with other plans and projects was considered in the assessment that is presented in Table 4-1. Plans and projects considered include those that are listed in Appendix 1.


Ardboline Island and Horse Island SPA
Ballintemple and Ballygilgan SPA
Ben Bulben, Gleniff and Glenade Complex SAC
Sligo/Leitrim Uplands SPA
Sligo/Leitrim Uplands SPA
Drumcliff Bay SPA
Cummeen Strand SPA
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC
Lough Gill SAC
Ballysadare Bay SPA
Ballysadare Bay SAC
Union Wood SAC
Unshin River SAC
Map Legend
SIte Location
Special Protection Area (SAC)
Special Area of Conservation (SAC)
WFD Sub-Catchment
WFD Catchment
Microsoft product screen shots reprinted with permission from Microsoft Corporation
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Drawing Title
EU Designated Sites
Project Title
Markievicz Bridge Scour Repairs
Drawn By
EF
Checked By
SM
Project No.
220943
Drawing No.
Figure 4-1
Scale
1:100,000
Date
04/03/2025
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Table 4-1 Identification of European Sites within the Likely Zone of Influence

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
Special Areas of Conservation (SAC)			
Lough Gill SAC (001976) **Distance:** The Proposed Works is located within the SAC	› [3150] Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation › [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia)* (* important orchid sites) › [91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles › [91E0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae)* *	Detailed conservation objectives for this site, (Version 1, December 2021[2]), were reviewed as part of the assessment and are available at www.npws.ie	The Proposed Works is located entirely within the SAC boundaries. There is potential for direct effects associated with the Proposed Works. The Proposed Works is located on the Garavogue River and will require the creation of a dry working area directly within the river in order to carry out riverbed scour repair works beneath the Markievicz Bridge and to repair scour damage directly on the bridge abutments. De-vegetation works on the external walls of the bridge will also be carried out while the de-watered area is in place. By taking a precautionary approach, there is potential that the Proposed Works may result in direct mortality or disturbance to spawning lamprey and salmonid designated for this SAC as a result of the in-stream works. There is also potential for direct QI-supporting habitat loss associated with the riverbed scour repair works associated with

[2] *NPWS (2021a) Conservation Objectives: Lough Gill SAC 001976. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.*

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
	› [1092] White-clawed Crayfish *(Austropotamobius pallipes)* › [1095] Sea Lamprey *(Petromyzon marinus)* › [1099] River Lamprey *(Lampetra fluviatilis)* › [1106] Salmon *(Salmo salar)* › [1355] Otter *(Lutra lutra)* › [1096] Brook Lamprey *(Lampetra planeri)*		the Proposed Works. Therefore, there is a direct source-pathway-receptor chain for likely significant effects. There is potential for indirect effects on the designated QI habitats and species of this SAC via potential deterioration of water quality during the construction phase of the Proposed Works. There is potential that a pollution event associated with the in-stream works may result in a deterioration of water quality within the Garavogue River. Such an event may also occur during the steam cleaning and use of lime mortar associated with the de-vegetation and re-pointing works, as well as the use of concrete associated with the bridge abutment repair works. Works carried out directly within the river during the in-stream works may result in the introduction of invasive species, including invasive plants and invasive fauna (e.g molluscs) or disease (e.g crayfish plague) to the aquatic environment via machinery, equipment or clothing during the in-stream works. This has potential to significantly affect the QI designated habitats and species of this SAC. Additionally, there is potential for indirect disturbance effects on the QI designated species during the construction phase of the Proposed Works as a result of the works occurring directly

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			within the Garavogue River. There is potential that the dry working area created within the Garavogue River may result in a barrier to migration for QI designated species within the river. Therefore, there is an indirect source-pathway-receptor chain for significant effect via disturbance to QI species. **A complete source pathway receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Works to result in likely significant effects on this European Site. Therefore, the European Site is located within the Likely Zone of Influence and is considered further in this assessment.**
Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (000627) **Distance:** 190m **Hydrological distance:** 240m	› [1014] Marsh Snail *(Vertigo angustior)* › [1095] Sea Lamprey *(Petromyzon marinus)* › [1099] River Lamprey *(Lampetra fluviatilis)* › [1130] Estuaries › [1140] Mudflats and sandflats not covered by seawater at low tide	Detailed conservation objectives for this site, (Version 2, July 2024[3]), were reviewed as part of the assessment and are available at www.npws.ie	The Proposed Works and all associated works on the Markievicz Bridge are located within the Garavogue River, which is located approximately 240m upstream of this SAC. The works are located entirely outside this SAC and therefore there will be no direct significant effects. Any potential for direct effects via mortality, disturbance and loss of QI supporting habitat on mobile QI aquatic species, including Lamprey *spp.* is assessed above under Lough Gill SAC, in which the works are directly located.

[3] *NPWS (2024) Conservation Objectives: Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC 000627. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.*

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
	› [1365] Harbour seal *(Phoca vitulina)* › [2110] Embryonic shifting dunes › [2120] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) › [2130] Fixed coastal dunes with herbaceous vegetation (grey dunes) › [5130] *Juniperus communis* formations on heaths or calcareous grasslands › [6210] Semi-natural dry grassland and scrubland facies on calcareous substrates (*Festuco Brometalia*) (*important orchid site) › [7220] Petrifying springs with tufa formation (*Cratoneurion*)		A potential for indirect significant effects was identified in the form of loss of habitat as a result of the riverbed scour repairs and in-stream works as part of the Proposed Works. A potential for indirect effect on the QI designated habitats and species has been identified in the form of a deterioration of downstream water quality during the construction phase of the Proposed Works, via a pollution event associated with the instream works. Such an event could occur during the steam cleaning and use of lime mortar associated with the de-vegetation works and the use of concrete associated with the riverbed and bridge abutment repair works. Therefore, there is an indirect source-pathway-receptor chain for significant effect via downstream water quality deterioration. Works carried out directly within the river during the in-stream works may result in the introduction of invasive species to this SAC downstream, including invasive plants and invasive fauna (e.g molluscs) or disease (e.g crayfish plague) to the aquatic environment via machinery, equipment or clothing during the in-stream works. This has potential to significantly affect the QI designated habitats and species of this SAC.

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			Additionally, there is potential for indirect ex-situ disturbance effects on the QI designated species during the construction phase of the Proposed Works as a result of the works occurring directly within the river. There is also potential for the dry working area created within the Garavogue River to result in a barrier to migration of mobile QI designated species within the river. Therefore, there is an indirect ex-situ source-pathway-receptor chain for significant effect via indirect disturbance. **A complete source-pathway-receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Works to result in likely significant effects on this European Site. Therefore, the European Site is located within the Likely Zone of Influence and is considered further in this assessment.**
Ballysadare Bay SAC (000622) **Distance:** 5.9km	› [1130] Estuaries › [1140] Mudflats and sandflats not covered by seawater at low tide › [2110] Embryonic shifting dunes	Detailed conservation objectives for this site, (Version 1, November 2013[4]), were reviewed as part of the assessment and are available at www.npws.ie	There will be no direct effects as the footprint of the Proposed Works is located entirely outside this designated site. There is no direct surface water hydrological connectivity from the Proposed Works to this SAC. The Garavogue River is hydrologically connected downstream to the Garavogue Estuary.

[4] *NPWS (2013a) Conservation Objectives: Ballysadare Bay SAC 000622. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
	› [2120] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) › [2130] Fixed coastal dunes with herbaceous vegetation (grey dunes) * › [2190] Humid dune slacks › [1014] Narrow-mouthed Whorl Snail *(Vertigo angustior)* › [1365] Harbour Seal *(Phoca vitulina)*		Due to the scale of the Proposed Works, coupled with the large assimilation capacity of marine waters and the large intervening distance from the Proposed Works and this SAC (approximately 5.9km), there is no potential for significant effects on the QI designated habitats and species as a result of the Proposed Works. **No source-pathway-receptor chain for significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Influence and is not considered further in this assessment.**
Union Wood SAC (000638) **Distance:** 6.6km	› [91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	Detailed conservation objectives for this site, (Version 1, January 2021[5]), were reviewed as part of the assessment and are available at www.npws.ie	There will be no direct effects as the footprint of the Proposed Works is located entirely outside this designated site. The habitat for which the site is designated for is terrestrial in nature. There is significant overland distance between the Proposed Works and this SAC (approx. 6.6km). Therefore, there is no source-pathway-receptor chain for significant effects as a result of the Proposed Works.

[5] *NPWS (2021b) Conservation Objectives: Union Wood SAC 000638. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.*

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			No source-pathway-receptor chain for significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Influence and is not considered further in this assessment.
Unshin River SAC (001898) **Distance:** 6.9km	› [1106] Salmon *(Salmo salar)* › [1355] Otter *(Lutra lutra)* › [3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation › [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia)* (* important orchid sites) › [6410] *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	Detailed conservation objectives for this site, (Version 1, December 2021[6]), were reviewed as part of the assessment and are available at www.npws.ie	There will be no direct effects as the footprint of the Proposed Works is located entirely outside this designated site. There is no hydrological connectivity between the Proposed Works and this SAC. Therefore, there is no surface water source-pathway-receptor chain for likely significant effects via surface water hydrological connectivity. Due to the nature of the Proposed Works being located entirely within the Garavogue River, coupled with the large intervening distance from the SAC (7km) and the lack of any hydrological connectivity, there is no potential for significant effects as a result of the Proposed Works. **No source-pathway-receptor chain for significant effect on this European Site was identified, when considered in the absence**

[6] *NPWS (2021c) Conservation Objectives: Unshin River SAC 001898. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.*

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
	› [91E0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) *		**of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Influence and is not considered further in this assessment.**
Ben Bulben, Gleniff and Glenade Complex SAC (000623) **Distance:** 7.3km	› [1013] Geyer's Whorl Snail *(Vertigo geyeri)* › [1355] Otter *(Lutra lutra)* › [3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation › [4010] Northern Atlantic wet heaths with *Erica tetralix* › [4030] European dry heaths › [4060] Alpine and Boreal heaths › [5130] *Juniperus communis* formations on heaths or calcareous grasslands › [6210] Semi-natural dry grasslands and scrubland facies	Detailed conservation objectives for this site, (Version 1, December 2021[7]), were reviewed as part of the assessment and are available at www.npws.ie	There will be no direct effects as the footprint of the Proposed Works is located entirely outside this designated site. There is no hydrological connection between the Proposed Works and this SAC, therefore there will be no significant effects on any aquatic QIs listed for this SAC. There will be no significant effects on the remaining QI habitats are as they are entirely terrestrial in nature. Due to the nature of the Proposed Works being located entirely within the Garavogue river, coupled with the large intervening distance from the Proposed Works to this SAC (7.3km) and the lack of any surface water connectivity, there is no potential for significant effects as a result of the Proposed Works. **No source-pathway-receptor chain for significant effect on this European Site was identified, when considered in the absence**

[7] *NPWS (2021d) Conservation Objectives: Ben Bulben, Gleniff and Glenade Complex SAC 000623. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.*

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
	on calcareous substrates (*Festuco-Brometalia*) (*important orchid species) › [6230] Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) * › [6430] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels › [7130] Blanket bogs (* if active bog) › [7140] Transition mires and quaking bogs › [7220] Petrifying springs with tufa formation (Cratoneurion)* › [7230] Alkaline fens › [8110] Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*)		**of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Influence and is not considered further in this assessment.**

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
	› [8120] Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*) › [8210] Calcareous rocky slopes with chasmophytic vegetation › [1013] Geyer's Whorl Snail *(Vertigo geyeri)* › [1355] Otter (*Lutra lutra)*		
Special Protection Area (SPA)			
Cummeen Strand SPA (004035) **Distance:** 600m **Hydrological distance:** 700m	› [A046] Brent Goose *(Branta bernicla hrota)* › [A130] Oystercatcher *(Haematopus ostralegus)* › [A162] Redshank *(Tringa tetanus)* › [A999] Wetlands	Detailed conservation objectives for this site, (Version 1, September 2013[8]), were reviewed as part of the assessment and are available at www.npws.ie	There will be no direct significant effects on this SPA as the Proposed Works is located entirely outside of the boundaries of this SPA. The Proposed Works is located within an urban setting in the centre of Sligo Town. Therefore, the location of the Proposed Works is subjected to regular, ongoing disturbance. Additionally, the primary wetland supporting habitat associated with this designated SCI species is found over 700m downstream of the Proposed Works. Therefore, there is no potential for any ex-situ disturbance effects on any of the

[8] *NPWS (2013b) Conservation Objectives: Cummeen Strand SPA 004035. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			designated SCI species during the construction phase of the Proposed Works. A potential for indirect effect on the designated SCI supporting habitat was identified via a deterioration of water quality during the construction phase of the Proposed Works or via a pollution event associated with the instream works required. Such an event could occur during the steam cleaning and use of lime mortar associated with the de-vegetation works and the use of concrete associated with the riverbed and bridge abutment repair works. Therefore, a source-pathway-receptor chain for likely significant effects has been identified. Additionally, works carried out directly within the river during the in-stream works may result in the introduction of invasive species, including invasive plants and invasive fauna (e.g molluscs) or disease to the aquatic environment via machinery, equipment or clothing during the in-stream works. This has potential to significantly affect the SCI supporting habitats of this SPA downstream of the Proposed Works. **A complete source-pathway-receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Works to result in likely significant effects on the habitat of this European Site. Therefore, the European Site is located within**

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			the Likely Zone of Influence and is considered further in this assessment.
Drumcliff Bay SPA (004013) **Distance:** 5.4km	› [A144] Sanderling *(Calidris alba)* › [A157] Bar-tailed Godwit (*Limosa lapponica*) › [A999] Wetlands	Detailed conservation objectives for this site, (Version 1, September 2013[9]), were reviewed as part of the assessment and are available at www.npws.ie	There will be no direct significant effects on this SPA as the Proposed Works is located entirely outside of the boundaries of this SPA. This SPA is located within Sligo Bay Coastal Waterbody (IE_WE_450_0000) which is the receiving waterbody of the Garavogue River. Due to the assimilation capacity of marine water coupled with the scale of the proposed works, no potential for significant effects on water quality as a result of the construction phase of the proposed works was identified. The Proposed Works is located within the centre of Sligo Town, which consists of a modified urban landscape. No suitable foraging habitat for the SCI species is found within the vicinity of the Proposed Works. The construction phase of the Proposed Works will not cause any additional disturbance to the SCI species beyond what is typical in an urban landscape. No source-pathway-receptor-chain for significant effects as a result of disturbance to SCI species was identified.

[9] *NPWS (2013c) Conservation Objectives: Drumcliff Bay SPA 004013. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			Due to small scale of the Proposed Works consisting of scour repairs on the bridge abutments and de-vegetation works as well as the large intervening distance from the SPA (5.4km), there is no potential for significant effects as a result of the Proposed Works. **No source-pathway-receptor chain for significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Influence and is not considered further in this assessment.**
Sligo/Leitrim Uplands SPA (004187) **Distance:** 5.6km	› [A346] Chough *(Pyrrhocorax pyrrhocorax)* › [A103] Peregrine *(Falco peregrinus)*	Detailed conservation objectives for this site are not available. First Order Site-specific Conservation Objectives are *'To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA'* (This First Order Site-specific Conservation Objectives Version 1.0 document replaces the Generic	There will be no direct significant effects on this SPA as the Proposed Works is located entirely outside of the boundaries of this SPA. No suitable supporting habitat for the SCI species is found within the vicinity of the Proposed Works. There will therefore, be no significant effects on the SCI species as a result of habitat loss. Due to the small scale of the works consisting of scour repairs on the bridge abutments and de-vegetation works as well as the large intervening distance from the SPA (5.5km). There is no

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
		Conservation Objectives Version 9.0 document[10]) The Conservation Objective document is available at www.npws.ie	potential for significant effects on the SCI species of the SPA as a result of the Proposed Works. **No source-pathway-receptor chain for significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Influence and is not considered further in this assessment.**
Ballysadare Bay SPA (004129) **Distance:** 5.9km **Hydrological distance:** 12.5km	› [A046] Brent Goose (*Branta bernicla hrota)* › [A141] Grey Plover *(Pluvialis squatarola)* › [A149] Dunlin *(Calidris alpina alpina)* › [A157] Bar-tailed Godwit *(Limosa lapponica)* › [A162] Redshank *(Tringa tetanus)* › [A999] Wetlands	Detailed conservation objectives for this site, (Version 1, October 2013[11]), were reviewed as part of the assessment and are available at www.npws.ie	There will be no direct significant effects on this SPA as the Proposed Works is located entirely outside of the boundaries of this SPA. This SPA is located within Sligo Bay Coastal Waterbody (IE_WE_450_0000) which is the receiving waterbody of the discharge from the Garavogue River. Due to the assimilation capacity of marine water as well as the small scale of the proposed works consisting of scour repairs on the bridge abutments and de-vegetation works, no potential for significant effects on water quality as a result of the construction phase of the proposed works was identified.

[10] *NPWS (2022a) Conservation objectives for Sligo/Leitrim Uplands SPA [004187]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.*
[11] *NPWS (2013d) Conservation Objectives: Ballysadare Bay SPA 004129. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.*

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			The Proposed Works is located within the centre of Sligo Town which is a large urban area and therefore, is not a prime foraging location or habitat for these SCI species. The predominant habitat in the vicinity of the Proposed Works is **buildings and artificial surfaces (BL3)** and therefore, is heavily modified and subject to typical urban disturbance. More suitable wetland habitat is found elsewhere within the SPA. There is, therefore, no potential for significant effects on the SCI species as a result of the Proposed Works. **No source-pathway-receptor chain for significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Influence and is not considered further in this assessment.**
Ballintemple and Ballygilgan SPA (004234) **Distance:** 8.7km	[A045] Barnacle Goose *(Branta leucopsis)*	Detailed conservation objectives for this site are not available. First Order Site-specific Conservation Objectives are *'To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA'*	There will be no direct significant effects on this SPA as the Proposed Works is located entirely outside of the boundaries of this SPA. This SPA is located within Sligo Bay Coastal Waterbody (IE_WE_450_0000) which is the receiving waterbody of the discharge from the Garavogue River. Due to the assimilation capacity of marine water as well as the small scale of the

European Sites and distance from Proposed Works	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
		(This First Order Site-specific Conservation Objectives Version 1.0 document replaces the Generic Conservation Objectives Version 9.0 document.[12]) The Conservation Objective document is available at www.npws.ie	proposed works consisting of scour repairs on the bridge abutments and de-vegetation works, no potential for significant effects on water quality as a result of the construction phase of the proposed works was identified. The Proposed Works is located within the centre of Sligo Town which is a large urban area and therefore, is not a prime foraging location or habitat for these SCI species. The predominant habitat in the vicinity of the Proposed Works is **buildings and artificial surfaces (BL3)** and therefore, is heavily modified and subject to typical urban disturbance. More suitable wetland habitat is found elsewhere within the SPA. There is, therefore, no potential for significant effects on the SCI species as a result of the Proposed Works. **No source-pathway-receptor chain for significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects and the site is not within the Likely Zone of Influence and is not considered further in this assessment.**

[12] *NPWS (2022b) Conservation objectives for Ballintemple and Ballygilgan SPA [004234]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.*

4.2 Stage 1 Appropriate Assessment Screening Conclusion

It cannot be excluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the Proposed Works, individually or in combination with other plans and projects, would be likely to have a significant effect the following designated sites:

- Lough Gill SAC (001976)
- Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (000627)
- Cummeen Strand SPA (004035)

As a result, an Appropriate Assessment is required, and a Natura Impact Statement has been prepared in respect of the Proposed Works.

5. STAGE 2- NATURA IMPACT STATEMENT (NIS)

The potential for likely significant effects on the following European Sites in the absence of any mitigation, individually or cumulatively with other plans or projects, was identified in the preceding section:

- Lough Gill SAC [001976]
- Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627]
- Cummeen Strand SPA [004035]

The following sections consider each European Site individually to:

1. Determine which individual qualifying features have the potential to be adversely affected by the Proposed Works.
2. Provide information with regard to the Conservation Objectives and site-specific pressures and threats for those qualifying features that have the potential to be adversely affected.

5.1 Identification of relevant Qualifying Features and Desk Study

5.1.1 Lough Gill SAC (001976)

The identified pathways for effect as identified in Section 4.1 above include the following:

- The Proposed Works is located within the western extent of this SAC on the Garavogue River as it approaches the estuary. Proposed in-stream works including a dry working area will be required in order to carry out the scour repair and de-vegetation associated with the Proposed Works. There is potential for direct mortality and disturbance effects to spawning lamprey and salmonid species within the dry working area.
- There is also potential for direct QI-supporting habitat loss associated with the riverbed scour repair works associated with the Proposed Works.
- The instream works also have potential for indirect effects via deterioration of surface water via run off of hydrocarbons, silt, cement and other polluting materials to the aquatic environment. Concrete and other cement-based products which will be used during the bridge abutment scour repairs are highly alkaline and corrosive and can have negative impacts on water quality. They generate very fine, highly alkaline silt (pH 11.5) which can physically damage fish by burning their skin and blocking their gills.
- The Proposed Works is located within a tidal river. Tidal water inundation of the in-stream works during the construction phase presents risks to surface water quality in the Garavogue River (i.e. from spoil storage, fuels/oils and chemical displacement), people and plant.
- Works carried out directly within the river during the in-stream works may also result in the introduction of invasive species.
- There is also a potential for disturbance to the QI designated species of this SAC during the in-stream works, or the creation of a barrier to migration for a number of anadromous species.

The above-described potential source-pathway-receptor chains for impact have the potential to affect downstream aquatic habitats within Lough Gill SAC.

Table 5-1 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, and determines whether there is any complete source-pathway-receptor chain, by which adverse effects may occur.

5.1.1.1 Identification of Individual Qualifying Features with the Potential to be Affected

Table 5-1 Assessment of Qualifying features potentially affected for Lough Gill SAC (001976)

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021[2],	Rationale	Potential for Adverse Effects Y/N
[1092] White-clawed Crayfish *(Austropotamobius pallipes)*	To maintain the favourable conservation condition of White-clawed Crayfish (*Austropotamobius pallipes*) in Lough Gill SAC	The Proposed Works is located directly within Lough Gill SAC, at the western end of the SAC on the tidal Garavogue River as it approaches the estuary. According to the SSCO document for this SAC, the main population of White-clawed crayfish (*Austropotamobius pallipes*) is found in the Bonet River, which is located within the upper catchment of this SAC, upstream of the location of the Proposed Works (from Dromahair upstream to Glenade Lough). The SSCO document also states that White-clawed crayfish are not known to be present within Lough Gill itself[13]. According to Gammell et al (2021)[14], White-Clawed-Crayfish surveys were carried out within Lough Gill SAC between August 9-18th 2017. No crayfish were detected within Lough Gill, Doon Lough, the Carton River, the Ardakip River or the Owenmore River. Lough Gill SAC appears to have one of the lowest populations of White Clawed Crayfish out of all surveyed SACs (along with Lough Corrib SAC, Lough Nageage SAC and the River Barrow and River Nore SAC). Out of a total of 115 patches surveyed, only 29 White-clawed crayfish were recorded, and was therefore given a population abundance grade of 'low'.	Yes

[13] *O'Connor et al. (2009). Monitoring of white-clawed crayfish Austropotamobius pallipes in Irish lakes in 2007. Irish Wildlife Manuals, No. 37.*
[14] *Gammell,M.,McFarlane, A., Brady, D., O'Brien, J., Mirimin, L.,Graham, C., Lally, H., Minto, C. & O'Connor,I. (2021)White-clawed Crayfish Austropotamobius pallipes survey in designated SACs in 2017.Irish Wildlife Manuals, No. 131. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.*

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021[2],	Rationale	Potential for Adverse Effects Y/N
		According to NPWS QGIS point data, there are no records of White-clawed crayfish downstream of the Proposed Works. Records of are found approximately 9.5km east of the Proposed Works, within the Bonet River (upstream of the Proposed Works). There are no known records of White Clawed Crayfish *(Austropotamobius pallipes)* downstream of the Proposed Works, as well as no desktop data demonstrating the presence of White Clawed Crayfish within the stretch of the Garavogue River where the Proposed Works is located. Additionally, this species was not recorded during any site work undertaken at the Proposed Works. However, by taking a precautionary approach, there is potential for the accidental introduction of non-native invasive species or disease (i.e. Crayfish plague) as a result of the in-stream works. By taking a precautionary approach, further assessment is required.	
[1095] Sea Lamprey *(Petromyzon marinus)*	To restore the favourable conservation condition of Sea Lamprey (*Petromyzon marinus*) in Lough Gill SAC	The Proposed Works is located directly within this SAC on the Garavogue River. There is potential for the Proposed Works to result in direct effects on this species as a result of the in-stream works required, which could lead to mortality of lamprey within the dry working area. The proposed in-stream works associated with the Proposed Works has potential to create a temporary barrier to migrating Sea Lamprey within the Garavogue River and Lough Gill SAC. The proposed in-stream works will only be carried out across approximately half of the river's width; therefore the river will be able to flow past the dry working area through the other half of the river. However, by taking a	Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021[2],	Rationale	Potential for Adverse Effects Y/N
		precautionary approach and in the absence of mitigation, there is potential that the riverbed scour repairs may result in a barrier to migration for this species. The Proposed Works may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. There is also potential for the introduction of invasive species as a result of the in-stream works. This has potential to adversely affect water quality within the habitat for which this species is reliant. According to the SSCO document, Sea lampreys spawn in well-oxygenated gravels where they excavate large nests. Suitable spawning habitat for sea lamprey in this SAC is limited to sections of the Garavogue River in Sligo town and downstream of Dromahair on the River Bonet. There is therefore potential that the in-stream works and scour repairs within the SAC may result in a direct loss of spawning habitat within the Garavogue River for the Sea Lamprey. Further assessment is therefore required.	
[1096] Brook Lamprey *(Lampetra planeri)*	To restore the favourable conservation condition of Brook Lamprey (*Lampetra planeri*) in Lough Gill SAC	The Proposed Works is located directly within this SAC on the Garavogue River. There is potential for the Proposed Works to result in direct effects on this species as a result of the in-stream works required, which could lead to mortality of the Brook Lamprey within the working area.	Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021[2],	Rationale	Potential for Adverse Effects Y/N
		The Proposed Works may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. There is also potential for the introduction of invasive species as a result of the in-stream works. This has potential to adversely affect the freshwater habitat within this SAC for which this species is reliant. According to the SSCO document, larval Brook lamprey live in fine sediment, and Brook lamprey spawn in clean gravels where they excavate shallow nests. There is potential that the in-stream works, and riverbed scour repairs within the SAC (and Garavogue River) may result in a direct loss of spawning habitat for the River Lamprey. The proposed in-stream works associated with the Proposed Works has potential to create a temporary barrier to migrating Brook Lamprey within the Garavogue River and Lough Gill SAC. The proposed in-stream works will only be carried out across approximately half of the river's width; therefore the river will be able to flow past the dry working area through the other half of the river. However, by taking a precautionary approach and in the absence of mitigation, there is potential that the riverbed scour repairs may result in a barrier to migration for this species.	
[1099] River Lamprey *(Lampetra fluviatilis)*	To restore the favourable conservation condition of River	The Proposed Works is located directly within this SAC on the Garavogue River. There is potential for the Proposed Works to result in direct effects on this species as	Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021[2],	Rationale	Potential for Adverse Effects Y/N
	Lamprey (*Lampetra fluviatilis*) in Lough Gill SAC	a result of the in-stream works required, which could lead to mortality of lamprey within the working area. The Proposed Works may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. There is also potential for the introduction of invasive species as a result of the in-stream works. This has potential to adversely affect the habitat for which this species is reliant (water quality). According to the SSCO document, River lamprey spawn in clean gravels in flowing water where they excavate shallow nests. Suitable spawning habitat for River Lamprey may exist within proximity of the Proposed Works. There is therefore potential that the in-stream works, and riverbed scour repairs within the SAC (and Garavogue River) may result in a direct loss of spawning habitat for the River Lamprey. The proposed in-stream works associated with the Proposed Works has potential to create a temporary barrier to migrating River Lamprey within the Garavogue River and Lough Gill SAC. The proposed in-stream works will only be carried out across approximately half of the river's width; therefore the river will be able to flow past the dry working area through the other half of the river. However, by taking a precautionary approach and in the absence of mitigation, there is potential that the riverbed scour repairs may result in a barrier to migration for this species.	

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021[2],	Rationale	Potential for Adverse Effects Y/N
[1106] Salmon *(Salmo salar)*	To restore the favourable conservation condition of Atlantic Salmon (*Salmo salar*) in Lough Gill SAC	The Proposed Works is located directly within this SAC on the Garavogue River. There is potential for the Proposed Works to result in direct effects on this species as a result of the in-stream works required, which could lead to mortality of Salmon *(Salmo salar)* within the working area. The Proposed Works may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. There is also potential for the introduction of invasive species as a result of the in-stream works. This has potential to adversely affect the habitat for which this species is reliant (water quality). According to the SSCO document, there is limited spawning habitat for Salmon within this SAC. However, by applying the precautionary approach, there is potential that the in-stream works, and riverbed scour repairs within the SAC (and Garavogue River) may result in a direct loss of spawning habitat for Salmon. The proposed in-stream works associated with the Proposed Works has potential to create a temporary barrier to migrating Salmon within the Garavogue River and Lough Gill SAC. The proposed in-stream works will only be carried out across approximately half of the river's width; therefore the river will be able to flow past the dry working area through the other half of the river. However, by taking a precautionary approach and in the absence of mitigation, there is potential that the riverbed scour repairs may result in a barrier to migration for this species.	Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021[2],	Rationale	Potential for Adverse Effects Y/N
[1355] Otter *(Lutra lutra)*	To maintain the favourable conservation condition of Otter (*Lutra lutra*) in Lough Gill SAC	The Proposed Works is located directly within this SAC on the Garavogue River. The works may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. A deterioration of water quality may adversely affect the Otter via a deterioration of water quality which could ultimately reduce prey biomass for this species within the Garavogue River. The Otter surveys undertaken during the multidisciplinary walkover surveys did not detect any evidence of otter within proximity of the Proposed Works. Additionally, habitats within proximity of the Proposed Works consist of largely man-made banks of concrete. Therefore, the habitats in direct proximity of the Proposed Works are unlikely to provide significant supporting habitat for this species. As a result, there will be no direct loss of otter habitat as a result of the Proposed Works. The Proposed Works may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. There is also potential for the introduction of invasive species as a result of the in-stream works. This has potential to adversely affect the habitat for which this species is reliant (water quality). In addition, a deterioration in water quality could lead to higher fish mortality in the area and lead to a decrease in prey biomass for otter.	Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021[2],	Rationale	Potential for Adverse Effects Y/N
		By taking a precautionary approach, there is potential that the Proposed Works may result in adverse disturbance effects on this species which may be present foraging or commuting in proximity of the Proposed Works. Additionally, there is potential for the in-stream works and riverbed scour repairs within the SAC (and Garavogue River) may result in a barrier to connectivity for this species.	
[3150] Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	To restore the favourable conservation condition of Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation in Lough Gill SAC	The Proposed Works is located directly within Lough Gill SAC, at the western end of the SAC on the tidal Garavogue River as it approaches the estuary. According to the SSCO document for this SAC, this habitat is located >3km upstream of the Proposed Works area within Lough Gill. Additionally, this habitat was not recorded during any of the site work carried out at the Proposed Works location. Therefore, there is no potential for any downstream adverse effects on the water quality within this habitat as a result of the Proposed Works.	No
[6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites)	To restore the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) in Lough Gill SAC	The Proposed Works and all associated works are located entirely within the Garavogue River within Lough Gill SAC. This QI designated habitat is terrestrial in nature and according to Map 4 of the SSCO document for this SAC, this habitat has been recorded >5km east of the Proposed Works. Therefore, there will be no adverse effects on this habitat as a result of the Proposed Works.	No
[91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	To restore the favourable conservation condition of Old sessile oak woods with *Ilex* and	The Proposed Works and all associated works are located entirely within the Garavogue River within Lough Gill SAC. This QI designated habitat is terrestrial nature and according to Map 5 within the SSCO document for this SAC, this habitat	No

Qualifying feature	Conservation Objective (NPWS, Version 1, December 2021[2],	Rationale	Potential for Adverse Effects Y/N
	Blechnum in the British Isles in Lough Gill SAC	has been recorded >6km southeast of the Proposed Works. Therefore, there will be no adverse effects on this habitat as a result of the Proposed Works.	
[91E0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) *	To restore the favourable conservation condition of Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) * in Lough Gill SAC	The Proposed Works and all associated works are located entirely within the Garavogue River within Lough Gill SAC. This QI designated habitat is located approximately 1.3km east of the Proposed Works on the banks of the Garavogue River. Periodic flooding is essential to maintain alluvial woodlands along river and lake floodplains. According to Map 5 of the SSCO document, the Proposed Works is located downstream of the records of this habitat within the SAC boundaries. Therefore, there is no potential for any adverse effects on this QI designated habitat as a result of the Proposed Works.	No

5.1.1.2 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures and activities with potential to impact on the European Site were reviewed and considered in relation to the Proposed Works. These are provided in Table 5.2

Table 5-2 Site-specific threats, pressures and activities

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside
High	E01.01	Continuous urbanisation	Both
Low	B	Sylviculture, forestry	Inside
Low	E03.03	Disposal of inert materials	Inside
Low	G01.01.01	Motorized nautical sports	Inside
Low	J02.05.02	Modifying structures of inland water courses	Inside
Low	J02.10	Management of aquatic and bank vegetation for drainage purposes	Inside
Medium	A10.01	Reduction of prey availability (including carcasses)	Inside
Medium	B06	Grazing in forests/ woodland	Inside
Medium	D01.01	Paths, tracks, cycling tracks	Inside
Medium	E01.03	Dispersed habitation	Inside
Medium	I01	Invasive non-native species	Inside

With regard to the Proposed Works, a pressure/threat to the SAC exists in the form of A10.01 'Reduction of prey availability (Including carcasses)' and J02.05.02 'Modifying of inland water courses'.

5.1.1.3 Species Specific Information

5.1.1.3.1 [1092] White-clawed Crayfish

According to the SSCO document (NPWS, 2021a), within Lough Gill SAC, the main population of white-clawed crayfish (*Austropotamobius pallipes*) is found in the Bonet River. Records indicate it is present on the main channel of the Bonet from Dromahair upstream to Glenade Lough (which is in an adjoining SAC). It is also found on the Shanvaus and Owenmore rivers and in Doon Lough, and in the stream that connects this lake to Lough Gill. There are likely to be crayfish populations in all 1km squares that overlap the designated sections of all these rivers; however, this would need to be proven by appropriate surveys. White-clawed crayfish are, however, not known to be present in Lough Gill itself (O'Connor et al., 2009) and are therefore not likely to be found within the Garavogue River in Sligo Town.

According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI species is 'Bad', and the overall conservation trend is 'deteriorating'.

Targets and Attributes

Table 5-3 Targets and Attributes for white-clawed crayfish (Austropotamobius pallipes)

Attribute	Target
Distribution	No reduction from baseline.
Population structure: recruitment	Juveniles and females with eggs in at least 50% of positive samples taken at appropriate time and methodology
Population size	No reduction from baseline of 0.25
Negative indicator species	No non-indigenous crayfish species present
Disease	No instances of disease
River water quality	At least Q3-4 at all sites sampled by EPA
Lake water quality	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat
Habitat quality: heterogeneity	No decline from the baseline

5.1.1.3.2 [1095] Sea Lamprey (*Petromyzon marinus*)

According to the SSCO document (NPWS, 2021a), artificial barriers can block or impede the passage of upstream migrating lamprey, thereby restricting access to spawning areas (Gargan et al., 2011; Rooney et al., 2015). The weir on the Garavogue River in Sligo town is currently not considered an issue for sea lamprey. However, there is a significant natural barrier, consisting of a sequence of waterfalls, at the village of Dromahair in the lower reaches of the River Bonet. Only a small number of records exist for sea lamprey (*Petromyzon marinus*) in Lough Gill SAC. An individual lamprey was observed immediately downstream of the weir in Sligo in 2015 and there have been anecdotal records of sea lamprey nests in the Garavogue in Sligo town. Significantly, two juvenile lake-feeding sea lampreys were recorded from Lough Gill in 2018 attached to pike (King and O'Gorman, 2018).

Sea lamprey do not exhibit complete fidelity to natal rivers and monitoring needs to occur over several years to build up a picture of inter-annual variation in spawning occurrence. Suitable spawning habitat for sea lamprey in Lough Gill SAC is limited to sections of the Garavogue River in Sligo town and downstream of Dromahair on the River Bonet. As stated above, few records exist for adult sea lampreys in this catchment and the sequence of waterfalls on the Bonet River at Dromahair represents a potential natural barrier to upstream migration.

According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI species is 'Bad', and the overall conservation trend is 'Stable'.

Targets and Attributes

Table 5-4 Targets and Attributes for sea lamprey (Petromyzon marinus)

Attribute	Target
Distribution: extent of anadromy	Greater than 75% of main stem length of rivers accessible from estuary
Annual run size	Annual run size should reflect that expected under near-natural conditions
Larval lamprey in fine sediment	Larval lamprey present in SAC catchment
Extent and distribution of spawning and nursery habitat	No decline in extent and distribution of spawning and nursery beds

5.1.1.3.3 [1096] Brook Lamprey *(Lampetra planeri)*

According to the SSCO document (NPWS, 2021a), artificial barriers can block or impede the passage of upstream migrating lamprey, thereby limiting their distribution to lower stretches and restricting access to spawning areas (Gargan et al., 2011; Rooney et al., 2015). Artificial barriers are not considered an issue for brook lamprey (*Lampetra planeri*) in Lough Gill SAC. As outlined in Section 3.2.3, the stretches of the Garavogue River upstream of the proposed works area has good spawning habitat for lamprey, and therefore this stretch of the river may provide supporting spawning habitat upstream in the vicinity of the Markievicz Bridge.

Brook lamprey spawn in clean gravels where they excavate shallow nests (Rooney et al., 2013). While coarse substrate is required for spawning, the close proximity of nursery areas comprising mainly sand/silt are necessary for the development of larvae. Of the 23 sites surveyed in 2016 (Gallagher et al., 2017), 35% had no nursery habitat, with 43% of sites having no nearby spawning habitat. A high proportion of sites with no suitable nursery habitat reflects the fluvial geomorphology of this catchment which is predominantly a mid to high energy system. Some of the low-lying arterially drained sections were too deep for sampling using the electro-fishing technique. Approximately 30% of the catchment's water bodies were subjected to arterial drainage in the 1980s. Drainage maintenance has the potential to alter instream sediment dynamics which in turn affects larval lamprey populations

According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI species is 'Favourable', and the overall conservation trend is 'Stable'.

Targets and Attributes

Table 5-5 Targets and Attributes for Brook lamprey (Lampetra planeri)

Attribute	Target
Distribution	Access to all water courses down to first order streams
Distribution in suitable habitat	Not less than 50% of sample sites with suitable habitat positive for larval brook/river lamprey

Population structure of larvae	At least three age/size classes of larval brook/river lamprey present
Larval lamprey density in fine sediment	Mean density of brook/river larval lamprey in sites with suitable habitat at least 5/m²
Extent and distribution of spawning and nursery habitat	No decline in extent and distribution of spawning and nursery beds

5.1.1.3.4 [1099] River Lamprey *(Lampetra fluviatilis)*

According to the SSCO document (NPWS, 2021a), artificial barriers can block or impede the passage of upstream migrating lamprey, thereby restricting access to spawning areas (Gargan et al., 2011; Rooney et al., 2015). There is a substantial weir on the Garavogue River in Sligo town, but this is currently not considered an issue for river lamprey (*Lampetra fluviatilis*) migration as there is a working fish pass and, failing that, one of the weir arches is open to enable fish passage. Of more significance is a possible natural barrier in the form of a substantial bedrock outcrop at the village of Dromahair in the lower reaches of the River Bonet. At this point, the river falls approximately 9m in a short distance over a series of bedrock outcroppings, creating a sequence of waterfalls. This feature poses a significant barrier to anadromous and catadromous fish species. At present, there are no records for adult river lamprey in the Garavogue-Bonet system.

River lamprey are anadromous and therefore they spawn in fresh water rivers, but spend part of their life cycle in the sea and estruaries. As outlined in Section 3.2.3, the stretches of the Garavogue River upstream of the proposed works area has good spawning habitat for lamprey, and therefore this stretch of the river may provide supporting spawning habitat upstream in the vicinity of the Markievicz Bridge.

Lamprey spawn in clean gravels in flowing water where they excavate shallow nests. While coarse substrate is required for spawning, the close proximity of nursery areas comprising mainly sand/silt are necessary for the development of larvae. Of the 23 sites surveyed in 2016 (Gallagher et al., 2017), 35% had no nursery habitat, with 43% of sites having no nearby spawning habitat. A high proportion of sites with no suitable nursery habitat reflects the fluvial geomorphology of this catchment which is predominantly a mid to high energy system. Some of the low-lying arterially drained sections were too deep for sampling using the electro-fishing technique. Approximately 30% of the catchment's water bodies were subjected to arterial drainage in the 1980s. Drainage maintenance has the potential to alter instream sediment dynamics which in turn affects larval lamprey populations.

According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI species is 'Unknown'.

Targets and Attributes

Table 5-6 Targets and Attributes for river lamprey (Lamperata fluviatilis)

Attribute	Target
Distribution	Access to all water courses down to first order streams

Distribution in suitable habitat	Not less than 50% of sample sites with suitable habitat positive for larval brook/river lamprey
Population structure of larvae	At least three age/size classes of larval brook/river lamprey present
Larval lamprey density in fine sediment	Mean density of brook/river larval lamprey in sites with suitable habitat at least 5/m²
Extent and distribution of spawning and nursery habitat	No decline in extent and distribution of spawning and nursery beds

5.1.1.3.5 [1106] Salmon *(Salmo salar)*

According to the SSCO document (NPWS, 2021a), artificial barriers block salmons' upstream migration, thereby limiting species to lower stretches and restricting access to spawning areas. As outlined in Section 3.2.3, the stretches of the Garavogue River upstream of the proposed works area has good spawning habitat for salmonid, and therefore this stretch of the river may provide supporting spawning habitat upstream in the vicinity of the Markievicz Bridge.

A conservation limit (CL) is defined by the North Atlantic Salmon Conservation Organisation (NASCO) as "the spawning stock level that produces long term average maximum sustainable yield as derived from the adult-to-adult stock and recruitment relationship". The target is based on the Technical Expert Group on Salmon's (TEGOS) annual model output of conservation limit (CL) attainment levels. See Gargan et al. (2021) for further details. Stock estimates are either derived from direct counts of adults (rod catch, fish counter) or indirectly by fry abundance counts. Lough Gill SAC is just below its CL for one-sea-winter (1SW) and just above its CL for multi-sea-winter (MSW) salmon.

According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI species is 'Inadequate', and the overall conservation trend is 'Stable'.

Targets and Attributes

Table 5-7 Targets and Attributes for salmon (Salmo salar)

Attribute	Target
Distribution: extent of anadromy	100% of river channels down to second order accessible from estuary
Adult spawning fish	Conservation limit (CL) for each system consistently exceeded
Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling
Out-migrating smolt abundance	No significant decline
Number and distribution of redds	No decline in number and distribution of spawning redds due to anthropogenic causes

Water quality	At least Q4 at all sites sampled by EPA

5.1.1.3.6 [1355] Otter *(Lutra lutra)*

According to the SSCO document (NPWS, 2021a), distribution was measure based on standard otter survey technique. Favourable Conservation Status (FCS) target, based on 1980/81 survey findings, is 88% in SACs. Current range is estimated at 93.6% (Reid et al., 2013).

Otters will regularly commute across stretches of open water up to 500m. e.g. between the mainland and an island; between two islands; across an estuary (De Jongh and O'Neill, 2010). It is important that such commuting routes are not obstructed. According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI species is 'Favourable', and the overall conservation trend is 'Stable'.

According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI species is 'Favourable', and the overall conservation trend is 'Improving'.

Targets and Attributes

Table 5-8 Targets and Attributes for otter (Lutra lutra)

Attribute	Target
Distribution	No significant decline
Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 193.91ha along riverbanks/ lake shoreline/around ponds
Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 80.38km
Extent of freshwater (lake) habitat	No significant decline. Area mapped and calculated as 353.39ha
Couching sites and holts	No significant decline
Fish biomass available	No significant decline
Barriers to connectivity	No significant increase.

5.1.2 Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC (000627)

The identified pathways for effect as identified in Section 4.1 above include the following:

- The Proposed Works and all associated works on the Markievicz Bridge are located entirely within the Garavogue River, which is located approximately 230m upstream of this SAC. The instream works required presents a risk of indirect effects via deterioration of surface water as a result of a loss of sediment and cement to the aquatic environment.
- Concrete and other cement-based products which will be used during the bridge abutment and riverbed scour repairs are highly alkaline and corrosive and can have significant negative impacts on water quality. They generate very fine, highly alkaline silt (pH 11.5) that can physically damage fish by burning their skin and blocking their gills. The Proposed Works is located within a tidal river. Tidal water inundation of the site during the construction phase presents risks to surface water quality in the Garavogue River (i.e. from spoil storage, fuels/oils and chemical displacement), people and plant. A potential for indirect effect on the listed QI habitats and species was identified via a deterioration of downstream water quality during the construction phase of the Proposed Works or via a pollution event associated with the instream works required. Such an event could occur during the steam cleaning and use of lime mortar associated with the de-vegetation works and the use of concrete associated with the riverbed and bridge abutment repair works.
- There is also potential for the introduction of invasive species as a result of the in-stream works.

The above-described potential source-pathway-receptor chain for impacts have the potential to affect downstream aquatic habitats within Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC.

Table 5-9 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur.

5.1.2.1 Identification of Individual Qualifying Features with the Potential to be Affected

Table 5-9 Assessment of Qualifying features potentially affected for Cummeen Strand/Drumcliff (Sligo Bay) SAC (000627)

Qualifying feature	Conservation Objective (NPWS, Version 2, July 2024[3]),	Rationale	Potential for Adverse Effects Y/N
[1014] Narrow-mouthed Whorl Snail (*Vertigo angustior*)	To maintain the favourable conservation condition of Narrow-mouthed Whorl Snail in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	According to the SSCO document for this SAC, optimal supporting habitat for this QI designated species is primarily fixed dune, species rich grassland. Map 7 of the SSCO document indicates that records of the Narrow-Mouthed Whorl Snail within this SAC are >8km west of the Proposed Works. Due to the terrestrial nature of the supporting habitat of this QI designated species and the lack of any source-pathway-receptor chains, there will be no adverse effects on this species as a result of the Proposed Works.	No
[1095] Sea Lamprey (*Petromyzon marinus*)	To restore the favourable conservation condition of Sea Lamprey in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	According to the SSCO document for this SAC, migrating adult lamprey pass through the site en-route to and/or from the Garavogue River, which flows out of Lough Gill SAC. Therefore, there is potential that this species may migrate upstream within the Garavogue River towards the Proposed Works and dry working area. According to the SSCO document, this SAC only covers the marine and estuarine habitat, and it is not anticipated that it contains suitable spawning or nursery habitat. However, the upstream stretches of the Garavogue River are likely to provide suitable spawning habitat for this designated population (as outlined in Section 5.1.1.1). Although the proposed works are located outside the SAC and there will be no direct effects on this species within the SAC, it is noted that the same population may pass into the Lough Gill SAC. Therefore, direct effects on this species light of habitat loss, disturbance and barrier to migration, have been assessed in relation to that SAC.	Yes

Qualifying feature	Conservation Objective (NPWS, Version 2, July 2024[3]),	Rationale	Potential for Adverse Effects Y/N
		The Proposed Works may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. There is also potential for the introduction of invasive species as a result of the in-stream works. This has potential to adversely affect water quality within the habitat for which this species is reliant. The proposed in-stream works associated with the Proposed Works has potential to create a temporary barrier to migrating Sea Lamprey within the Garavogue River and Lough Gill SAC. The proposed in-stream works will only be carried out across approximately half of the river's width; therefore the river will be able to flow past the dry working area through the other half of the river. However, by taking a precautionary approach and in the absence of mitigation, there is potential that the riverbed scour repairs may result in a barrier to migration for this species.	
[1099] River Lamprey (*Lampetra fluviatilis*)	To maintain the favourable conservation condition of River Lamprey in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	According to the SSCO document for this SAC, migrating adult lamprey pass through the site en route to and/or from the Garavogue River, which flows out of Lough Gill SAC. Therefore, there is potential that this species may migrate upstream along the Garavogue River towards the proposed in-stream works area. According to the SSCO document, this SAC only covers the marine and estuarine habitat, and it is not anticipated that it contains suitable spawning or nursery habitat. However, the upstream stretches of the Garavogue River are likely to provide suitable spawning habitat for this designated population (as outlined in Section 5.1.1.1). Although the proposed works are located outside the SAC and there will be	Yes

Qualifying feature	Conservation Objective (NPWS, Version 2, July 2024[3]),	Rationale	Potential for Adverse Effects Y/N
		no direct effects on this species within the SAC, it is noted that the same population may pass into the Lough Gill SAC. Therefore, direct effects on this species light of habitat loss, disturbance and barrier to migration, have been assessed in relation to that SAC. The Proposed Works may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. There is also potential for the introduction of invasive species as a result of the in-stream works. This has potential to adversely affect water quality within the habitat for which this species is reliant. The proposed in-stream works associated with the Proposed Works has potential to create a temporary barrier to migrating River Lamprey within the Garavogue River and Lough Gill SAC. The proposed in-stream works will only be carried out across approximately half of the river's width; therefore the river will be able to flow past the dry working area through the other half of the river. However, by taking a precautionary approach and in the absence of mitigation, there is potential that the riverbed scour repairs may result in a barrier to migration for this species.	
[1365] Harbour Seal (*Phoca vitulina*)	To maintain the favourable conservation condition of Harbour Seal in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	The Proposed Works may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. There is also potential for the introduction of invasive species as a result of the in-stream works.	Yes

Qualifying feature	Conservation Objective (NPWS, Version 2, July 2024[3]),	Rationale	Potential for Adverse Effects Y/N
		This has potential to adversely affect water quality within the habitat for which this species is reliant. According to Map 8 of the SSCO document for this SAC, suitable habitat, breeding sites and resting sites for the Harbour Seal are all located at least >200m downstream of the Proposed Works. Therefore, there is no potential for adverse disturbance effects on this species as a result of the Proposed Works.	
[1130] Estuaries	To maintain the favourable conservation condition of Estuaries in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	The Proposed Works is located approximately 247m upstream of this SAC. The Proposed Works will include in-stream works within the Garavogue River directly upstream of the Proposed Works. This may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. This has potential to adversely affect the water quality within this habitat.	Yes
[1140] Mudflats and sandflats not covered by seawater at low tide	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	The Proposed Works is located approximately 240m upstream of this SAC. The Proposed Works will include in-stream works within the Garavogue River directly upstream of the Proposed Works. This may result in a deterioration of downstream water quality within this SAC as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, as well as potential hydrocarbon spills from machinery used within the river during the proposed works. This has potential to adversely affect the water quality within this habitat.	Yes

Qualifying feature	Conservation Objective (NPWS, Version 2, July 2024[3]),	Rationale	Potential for Adverse Effects Y/N
[2110] Embryonic shifting dunes	To maintain the favourable conservation condition of Embryonic shifting dunes in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC,	This QI designated habitat is terrestrial in nature. According to Map 6 of the SSCO document, the Proposed Works is located approximately 8.5km overland distance from the QI designated habitat. Due to the terrestrial nature of this QI designated habitat and the large intervening distance, there is no potential for any adverse effects on this QI habitat as a result of the Proposed Works.	No
[2120] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)	To restore the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	This QI designated habitat is terrestrial in nature. According to Map 6 of the SSCO document, the Proposed Works is located >8km overland distance from the QI designated habitat. Due to the terrestrial nature of this QI designated habitat and the large intervening distance, there is no potential for any adverse effects on this QI habitat as a result of the Proposed Works.	No
[2130] Fixed coastal dunes with herbaceous vegetation (grey dunes) *	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	This QI designated habitat is terrestrial in nature. According to Map 6 of the SSCO document, the Proposed Works is located >7km overland distance from the QI designated habitat. Due to the terrestrial nature of this QI designated habitat and the large intervening distance, there is no potential for any adverse effects on this QI habitat as a result of the Proposed Works.	No
[5130] *Juniperus communis* formations on heaths or calcareous grasslands	To restore the favourable conservation condition of *Juniperus communis* formations	This QI designated habitat is terrestrial in nature. According to Map 7 of the SSCO document, the Proposed Works is located approximately 6.8km overland distance from the closest records of this QI designated habitat.	No

Qualifying feature	Conservation Objective (NPWS, Version 2, July 2024[3]),	Rationale	Potential for Adverse Effects Y/N
	on heaths or calcareous grasslands in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	Due to the terrestrial nature of this QI designated habitat and the large intervening distance, there is no potential for any adverse effects on this QI habitat as a result of the Proposed Works.	
[6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	To restore the Favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	This QI designated habitat is terrestrial in nature. According to Map 9 of the SSCO document, the Proposed Works is located >6km overland distance from the closest records of this QI designated habitat. Due to the terrestrial nature of this QI designated habitat and the large intervening distance, there is no potential for any adverse effects on this QI habitat as a result of the Proposed Works.	No
[7220] Petrifying springs with tufa formation (Cratoneurion)*	To maintain the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion) in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	According to the SSCO document, this habitat is located near Ballincar, along a seepage line in low sea cliffs near Ballincar across c. 200m of cliff. Petrifying springs rely on permanent irrigation, usually from upwelling groundwater sources or seepage sources. According to map 7 of the SSCO document for this SAC, the Proposed Works is located approximately 4.3km overland distance northwest of this recorded habitat within the SAC. Due to the terrestrial nature of this QI designated habitat and the large intervening distance, there is no potential for any adverse effects on this QI habitat as a result of the Proposed Works.	No

5.1.2.2 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures and activities with potential to impact on the European Site were reviewed and considered in relation to the Proposed Works. These are provided in Table 5-10.

Table 5-10 Site-specific threats, pressures and activities

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside
High	F01.01	Intensive fish farming, intensification	Inside
Low	E03.03	Disposal of inert materials	Inside
Low	G02.08	Camping and caravans	Inside
Low	G05.01	Trampling, overuse	Inside
Low	J01.01	Burning down	Inside
Low	J02.11.01	Dumping, depositing of degraded deposits	Inside
Low	J02.12.01	Sea defence or coast protection works, tidal barrages	Inside
Medium	A02.01	Agricultural intensification	Inside
Medium	D03	Shipping lanes, ports, marine constructions	Inside
Medium	D03.01	Port areas	Inside
Medium	E01.03	Dispersed habitation	Inside
Medium	G01.02	Walking, horse-riding and non-motorised vehicles	Inside
Medium	G01.03.02	Off road motorized driving	Inside
Medium	G02.01	Golf course	Inside
Medium	I01	Urbanised areas, human habitation	Inside

No potential pathways for effect with regard to site-specific threats, pressures and activities have been identified. None of the listed pressures and threats are related to activities associated with the proposed development

5.1.2.2.1 [1095] Sea Lamprey (*Petromyzon marinus*)

According to the SSCO for this SAC, it is not anticipated that it contains suitable spawning or nursery habitat for Lamprey species. However, migrating adult lamprey pass through the site en-route to/from the Garavogue River, which flows out of Lough Gill. Lough Gill SAC, which is adjacent to this SAC, encompasses the freshwater elements of sea lamprey habitat.

According to the Article 17 Report (NPWS, 2019), the life cycle of the sea lamprey (*Petromyzon marinus*) contains both a marine phase and a freshwater phase. During the freshwater phase they excavate spawning nests in gravelled areas of large rivers. Barriers to upstream migration (e.g. weirs), which limit access to spawning beds and juvenile habitat are considered the major impediment to good conservation status for sea lamprey. The overall Conservation Status for this QI species is 'Bad', and the overall conservation trend is 'Stable'.

Targets and Attributes

Table 5-11 Targets and Attributes for sea lamprey (Petromyzon marinus)

Attribute	Target
Distribution: extent of anadromy	No barriers for migratory life stages of lamprey moving from freshwater to marine habitats and vice versa

5.1.2.2.2 [1099] River Lamprey (*Lampetra fluviatilis*)

There is no site-specific information available on this species in the SSCO document for this SAC. According to the Article 17 Report (NPWS, 2019), River Lamprey (*Lampetra fluviatilis*) breeds in freshwater rivers and streams. Adults spawn in spring, excavating shallow nests in riverine sections comprising fine gravels and small stones. The overall Conservation Status for this QI species is 'Unknown'.

Targets and Attributes

Table 5-12 Targets and Attributes for river lamprey (Lampetra fluviatilis)

Attribute	Target
Distribution: extent of anadromy	No barriers for migratory life stages of lamprey moving from freshwater to marine habitats and vice versa

5.1.2.2.3 [1365] Harbour Seal (*Phoca vitulina*)

According to the SSCO for this SAC and the supporting marine habitats document (NPWS, 2013), Harbour seals in Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC occupy both aquatic habitats and intertidal shorelines that become exposed during the tidal cycle. The species is present at the site throughout the year during all aspects of its annual life cycle which includes breeding (May to July approx.), moulting (August to September approx.) and non-breeding foraging and resting phases (October to April). Comparatively limited information is available for this site from the moult period in

the annual cycle spanning the months of August and September. In acknowledging the limited understanding of aquatic habitat use by the species within the site it should be noted that all suitable aquatic habitat is considered relevant to the species range and ecological requirements at the site and is therefore of potential use by harbour seals.

Current information on locations selected by harbour seals in Cummeen Strand/Drumcliff Bay SAC during the breeding season is comparatively limited. Known and suitable habitats for the species in the SAC during the breeding season are indicated in figure 4. Current sites are broadly within the following areas: sandbank areas south of Lissadell Strand and Ballygilgan Strand.

According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI species is 'Favourable', and the overall conservation trend is 'Stable'.

Targets and Attributes

Table 5-13 Targets and Attributes for harbour seal (Phoca vitulina)

Attribute	Target
Access to suitable habitat	Species range within the site should not be restricted by artificial barriers to site use.
Breeding behaviour	Conserve the breeding sites in a natural condition.
Moulting behaviour	Conserve the moult haulout sites in a natural condition.
Resting behaviour	Conserve the resting haulout sites in a natural condition
Disturbance	Human activities should occur at levels that do not adversely affect the harbour seal population at the site

5.1.2.2.4 [1130] Estuaries

According to the SSCO for this SAC, the habitat area was estimated as 1258ha using OSi data and the defined Transitional Water Body area under the Water Framework Directive.

According to the marine habitat supporting document for this SAC (NPWS, 2013), there are many community types within the estuary habitat of this SAC. These community types include Intertidal fine sand with *Peringia ulvae* and *Pygospio elegans* community complex; Estuarine mixed sediment to sandy mud with *Hediste diversicolor* and oligochaetes community complex; *Zostera*-dominated community; Mytilidae-dominated community complex; Fine sand with *Angulus* spp. and *Nephtys* spp. community complex; Sand to mixed sediment with amphipods community and Intertidal reef community.

According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI habitat is 'Inadequate', and the overall conservation trend is 'Deteriorating'.

Targets and Attributes

Table 5-14 Targets and Attributes for estuaries

Attribute	Target
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.
Community extent	Maintain the extent of the *Zostera*-dominated community and the Mytilidae-dominated community complex, subject to natural processes.
Community structure: *Zostera* density	Conserve the high quality of the *Zostera*-dominated community, subject to natural processes
Community structure: Mytilus edulis density	Conserve the high quality of the Mytilidae-dominated community complex, subject to natural processes
Community distribution	Conserve the following community types in a natural condition: Intertidal fine sand with *Peringia ulvae* and *Pygospio elegans* community complex; Estuarine mixed sediment to sandy mud with *Hediste diversicolor* and oligochaetes community complex; Fine sand with *Angulus* spp. and *Nephtys* spp. community complex; Sand to mixed sediment with amphipods community; Intertidal reef community.

5.1.2.2.5 [1140] Mudflats and sandflats not covered by seawater at low tide

According to the marine habitat supporting document for this SAC (NPWS, 2013), there are many community types within the mudflats and sandflats not covered by seawater at low tide habitat of this SAC. These community types include Intertidal fine sand with *Peringia ulvae* and *Pygospio elegans* community complex; Estuarine mixed sediment to sandy mud with *Hediste diversicolor* and oligochaetes community complex; Fine sand with crustaceans and *Scolelepis* (*Scolelepis*) *squamata* community complex; *Zostera*-dominated community; Mytilidae-dominated community complex; Fine sand with *Angulus* spp. and *Nephtys* spp. community complex.

According to the Article 17 Report (NPWS, 2019), the overall Conservation Status for this QI habitat is 'Inadequate', and the overall conservation trend is 'Deteriorating'.

Targets and Attributes

Table 5-15 Targets and Attributes for mudflats and sandflats not covered by seawater at low tide

Attribute	Target
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.
Community extent	Maintain the extent of the Zostera-dominated community and the Mytilidae-dominated community complex, subject to natural processes.
Community structure: *Zostera* density	Conserve the high quality of the Zostera-dominated community, subject to natural processes
Community structure: Mytilus edulis density	Conserve the high quality of the Mytilidae-dominated community complex, subject to natural processes

Community distribution	Conserve the following community types in a natural condition: Intertidal fine sand with *Peringia ulvae* and *Pygospio elegans* community complex; Estuarine mixed sediment to sandy mud with *Hediste diversicolor* and oligochaetes community complex; Fine sand with crustaceans and *Scololepis* (*Scololepis*) *squamata* community complex; Fine sand with *Angulus* spp. and *Nephtys* spp. community complex.

5.1.3 Cummeen Strand SPA (004035)

The identified pathways for effect as identified in Section 4.1 above include the following:

- The Proposed Works is located approximately 700m upstream of this SPA. The Proposed Works and all associated works on the Markievicz Bridge are located entirely within the Garavogue River. A deterioration in water quality may occur during the steam cleaning and use of lime mortar associated with the de-vegetation works and the use of concrete associated with the riverbed and bridge abutment repair works. The instream works required presents a risk of indirect effects via deterioration of surface water as a result of a loss of sediment and cement to the aquatic environment. There is also potential for the introduction of invasive species during the proposed in-stream works which has the potential to impact the supporting wetland habitat for the designated SCI species of this SPA.
- Concrete and other cement-based products which will be used during the bridge abutment and riverbed scour repairs are highly alkaline and corrosive and can have significant negative impacts on water quality. The Proposed Works is located within a tidal river. Tidal water inundation of the Site during the construction phase also presents risks to surface water quality in the Garavogue River (i.e. from spoil storage, fuels/oils and chemical displacement), which may adversely affect the supporting habitat of the designated SCI species of this SPA.

The above-described potential source-pathway-receptor chain for impacts have the potential to affect downstream aquatic habitats within Cummeen Strand SPA.

Table 5-16 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur.

5.1.3.1 Identification of Individual Qualifying Features with the Potential to be Affected

Table 5-16 Assessment of Qualifying features potentially affected for Cummeen Strand SPA (004035)

Qualifying feature	Conservation Objective (NPWS, Version 1, September, 2013[8]),	Rationale	Potential for Adverse Effects Y/N
[A046] Brent Goose Branta (*bernicla hrota)*	To maintain the favourable conservation condition of Light-	The Proposed Works site is hydrologically connected to this SPA via approximately 700m. the Proposed Works has the potential to adversely affect the conservation	Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, September, 2013[8]),	Rationale	Potential for Adverse Effects Y/N
	bellied Brent Goose in Cummeen Strand SPA	status of these species through degradation in water quality of supporting habitat for the designates SCI species.	
[A130] Oystercatcher (*Haematopus ostralegus)*	To maintain the favourable conservation condition of Oystercatcher in Cummeen Strand SPA		
[A162] Redshank (*Tringa tetanus)*	To maintain the favourable conservation condition of Redshank in Cummeen Strand SPA		
[A999] Wetlands	To maintain the favourable conservation condition of wetland habitat in Cummeen Strand SPA as a resource for the regularly occurring migratory waterbirds that utilise it	The Proposed Works is located approximately 700m upstream of this SPA. The Proposed Works may result in a deterioration of downstream water quality within this SPA as a result of the scour repairs and de-vegetation works. The works may result in siltation of the watercourse, loss of pollutive materials during the scour repair works on the abutments and the riverbed, potential hydrocarbon spills from machinery used within the river during the proposed works as well as introduction of invasive species. This has potential to adversely affect the SCI supporting wetland habitat. Potential for effects has been identified.	Yes

5.1.3.2 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures and activities with potential to impact on the European Site were reviewed and considered in relation to the Proposed Works. These are provided in Table 5-17.

Table 5-17 Site-specific threats, pressures and activities

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside
Low	F02.03	Leisure fishing	Inside
Medium	H	Pollution	Inside
Medium	E01	Urbanised areas, human habitation	Outside
Medium	D01.02	Roads, motorways	Outside
Medium	A08	Fertilisation	Outside
High	J02.01.02	Reclamation of land from sea, estuary or marsh	Inside
High	E02	Industrial or commercial areas	Inside
High	D03.02	Shipping lanes	Inside
High	F01	Marine and freshwater aquaculture	Inside
High	E02	Industrial or commercial areas	Outside

With regard to the Proposed Works, a pressure/threat to the SAC exists in the form of 'Pollution'.

5.1.3.2.1 [A046] Brent Goose (*Branta bernicla hrota*)

Nationally there has been a 93% increase in the brent goose population from 1994/95 to 2019/20, as monitored via the Irish Wetland Bird Survey (Kennedy et al., 2022). According to the Conservation Objectives Supporting Document, during winter the site regularly supports 1% or more of the biogeographic population of Brent Goose (*Branta bernicla hrota*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 223 individuals. The population of brent geese on the site between 2006/07 and 2010/11 was 481 individuals. There has been a 116% increase in the brent goose population within the SPA between 1998/99 and 2010/11. The brent goose population at this SPA is designated to be of international importance. This species conservation status within the SPA is designated as 'Favourable' (NPWS, 2013e). Targets and Attributes in Table 5-18 below.

5.1.3.2.2 [A130] Oystercatcher (*Haematopus ostralegus*)

Nationally there has been a 11% increase in the oystercatcher population from 1994/95 to 2019/20, as monitored via the Irish Wetland Bird Survey (Kennedy et al., 2022). During winter the site regularly supports 1% or more of the all-Ireland population of oystercatcher. The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 680 individuals. The population of oystercatcher on the site between 2006/07 and 2010/11 was 792 individuals. There has been a 17% increase in the oystercatcher population within the SPA between 1998/99 and 2010/11. The oystercatcher population at this SPA is designated to be of national importance. This species conservation status within the SPA designated as 'Favourable' (NPWS, 2013e). Targets and Attributes in Table 5-18 below.

5.1.3.2.3 [A162] Redshank (*Tringa tetanus*)

Nationally there has been a 6.7% increase in the redshank population from 1994/95 to 2019/20, as monitored via the Irish Wetland Bird Survey (Kennedy et al., 2022). During winter the site regularly supports 1% or more of the all-Ireland population of redshank. The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 408 individuals. The population of oystercatcher on the site between 2006/07 and 2010/11 was 280 individuals. There has been a 31% decrease in the redshank population within the SPA between 1998/99 and 2010/11. The redshank population at this SPA is designated to be of national importance. This species conservation status within the SPA designated as 'Unfavourable' (NPWS, 2013e). Targets and Attributes in Table 5-18 below.

Targets and Attributes

Table 5-18 Targets and Attributes for SCI species

Attribute	Target
Population trend	Long term population trend stable or increasing
Distribution	No significant decrease in the range, timing and intensity of use of areas by the species, other than that occurring from natural patterns of variation

5.1.3.2.4 [A999] Wetlands

The wetland habitats contained within Cummeen Strand SPA are identified of conservation importance for non-breeding (wintering) migratory waterbirds. Therefore, the wetland habitats are considered to be an additional Special Conservation Interest. The area of wetland habitat within the SPA is 13,267ha.

The following relevant information has been extracted from the NPWS site synopsis and Natura 2000 Data Form for the SPA:

> *'At low tide, extensive areas of intertidal flats are exposed. These support a diverse macroinvertebrate fauna which provides the main food supply for the wintering waterfowl. The estuarine and intertidal habitats are of conservation importance and are designated as part of Cummeen Strand/Drumcliff Bay Special Area of Conservation (SAC Site Code 00627).*
>
> *Areas of salt marsh fringe the bay in places and provide roosting sites for birds during periods of high tide. Sand dunes occur at Killaspug Point and Coney Island, with a shingle spit at Standalone Point near Sligo Town. Coney Island is accessible by boat from Rosses Point or by driving or walking over the causeway (guided by 14 pillars) at low tide.*

Cummeen Strand SPA is of high ornithological importance and in addition to three species of Special Conservation Interest, supports an assemblage of over-wintering waterbirds. The Site Synopsis for Cummeen Strand SPA.'

The wetland habitats contained within Cummeen Strand SPA are identified of conservation importance for non-breeding (wintering) migratory waterbirds. Therefore, the wetland habitats are considered to be an additional Special Conservation Interest (NPWS, 2013e).

Targets and Attributes

Table 5-19 Targets and Attributes for wetlands

Attribute	Target
Habitat area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 13,267ha, other than that occurring from natural patterns of variation

6. ASSESSMENT OF POTENTIAL EFFECTS & ASSOCIATED MITIGATION

This section of the NIS assesses the potential effects of the Proposed Works on the identified relevant Qualifying Interests (QIs) and Special Conservation Interests (SCI). This assessment is undertaken in the absence of any mitigation and in respect of the conservation objectives of the European Sites. The Conservation Objectives each of the European Sites assessed were reviewed on the 22/10/2024. The Conservation Objectives for these sites are available at the following locations:

- Lough Gill SAC [001976]: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001976.pdf
- Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627]: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000627.pdf
- Cummeen Strand SPA [004035]: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004035.pdf

Following the initial impact assessment, mitigation is prescribed where necessary to avoid adverse effects on the Conservation Objectives of the relevant QIs/SCIs. This is presented in a schedule of mitigation that is provided below.

6.1 Potential for Direct Effects on the European Sites

The identified pathways for direct effects to Lough Gill SAC [001976] and Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627] is the potential for disturbance and mortality of QI designated species during the instream works, as well as the potential for direct loss of QI supporting habitat, as outlined below.

6.1.1 Construction Phase

6.1.1.1 Disturbance and Mortality of QI Species During Instream Works

The Markievicz Bridge is located within the Garavogue River which forms part of Lough Gill SAC [3150]. Upstream of the Markievicz Bridge there is good spawning habitat for Lamprey and salmonid species, therefore there is potential for the Proposed Works to result in direct disturbance or mortality of these species. The following QI designated species may be directly affected by the proposed works:

- [1095] Sea Lamprey *(Petromyzon marinus)*
- [1096] Brook Lamprey *(Lampetra planer)*
- [1099] River Lamprey *(Lampetra fluviatilis)*
- [1106] Salmon *(Salmo salar)*
- [1092] White-clawed Crayfish *(Austropotamobius pallipes)*

The works associated with the Proposed Works will involve the creation of a dry working area within the riverbed of the Garavogue River in order to carry out riverbed scour repair works and scour repair works on the bridge piers. There is potential that the creation of a dry working area may result in the mortality of aquatic QI species designated for Lough Gill SAC.

- No works will take place during the spawning season for lamprey (May to June) and salmonid (November to March)
- Instream works will only be carried out during the fisheries open season which is from 1st July to 30th of September each year;
- Inland Fisheries Ireland will be contacted and consulted at least 1 month prior to the outset of works. All works will take place under guidance of the IFI officer.
- Instream works will be carried out in consultation with Inland Fisheries Ireland (IFI) and in line with IFI (2016) *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters;*
- A dry working area will be set up within the river using 1-tonne sand bags stacked at double height. The working area will be dewatered. However, in advance of dewatering, fish salvage from the works area will be undertaken via electro-fishing.

With regard to lamprey ammocoetes which may potentially be present in riverbed sediments, the following mitigation will be in place:

- The translocation individuals will be relocated to a suitable similar river habitat location within the same grid reference.
- Any material removed from the riverbed will be checked by a suitably trained Ecologist under a Section 14 licence via manual hand search for any aquatic fauna including lamprey and European eel. These species are known to rise to the surface of excavated material for easy recovery by net.
- A second check for aquatic fauna will be carried out once the material has been offloaded into the final disposal area in order to ensure a thorough search through the excavated silt.
- On a precautionary basis, if White Clawed Crayfish are found within the working area, these will be safely translocated in a similar manner under licence.

Residual Impacts

No residual effects via mortality of QI species during construction are predicted once the above mitigation measures have been implemented.

6.1.1.2 Loss of QI Supporting Habitat (Riverbed Habitat)

The Garavogue River provides suitable spawning habitat for the designated QI species of Lough Gill SAC [01976]. As mentioned above, although the proposed works are located outside of the Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000527], it is noted that the same population may pass into the Lough Gill SAC. Therefore, direct effects on the designated species the Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000527 in light of habitat loss, disturbance and barrier to migration, have been assessed in relation to Lough Gill SAC [01976].

As outlined in Sections 3.2.2 and 0 above, good spawning habitat for lamprey and salmonid is found upstream of the Markievicz Bridge. Nursery habitat for lamprey and salmonid is also found downstream of the Markievicz Bridge in the south (LHB) approximately 4m width of the riverbed. There is poor habitat present within the downstream stretch of the Garavogue river within the proposed works area.

In the absence of mitigation, the proposed in-stream works and creation of a dry working area has potential to result in the loss of QI supporting habitat within the riverbed of the Garavogue River. The following mitigation measures will be applied.

- An electric 1.5 tonne mini digger will be the only machinery permitted within the dry working area.
- The suitable lamprey and salmonid nursery habitat downstream of the bridge on the south side (near the LHB) will be entirely marked out. There will be no machinery or personnel permitted within this area.
- Upstream of the Markievicz Bridge, the existing riverbed material will be re-spread over the areas damaged by scour and finished to natural riverbed levels.

Ecological Clerk of Works (ECoW)

- The ECoW will be present for all works taking place upstream of the bridge, in areas identified as providing suitable spawning habitat.
- Once the dry working area has been established, the ECoW will be responsible for making out the area of suitable nursery habitat in the south (RHB) downstream of the bridge.
- The ECoW will ensure that all machinery and personnel do not enter this area at any stage during the construction phase. (See Figure 6-2 below)

Residual Impacts

No residual effects via loss of QI supporting habitat during construction are predicted once the above mitigation measures have been implemented.

6.2 Potential for Indirect Effects on the European Sites

The following pathways for indirect effect to the Lough Gill SAC [001976] and Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627] and the Cummeen Strand SPA [004035] include the following:

- Barrier to Migration of QI species (Ecological Corridor)
- Disturbance to Otter
- Deterioration in water quality
- Biosecurity

6.2.1 Construction Phase

6.2.1.1 Barrier to Migration of QI Species (Ecological Corridor)

The Proposed Works will involve the creation of a dry working area to carry out in-stream scour repair and de-vegetation works within the Garavogue River. The proposed works will only take place spanning approximately half of the width of the river (dry working area 980m^2 in total and will extend approximately 6m upstream of the bridge and approximately 15.5m downstream of the bridge) at any given time during the proposed works.

Riverbed materials which have accumulated as a result of the riverbed scour damage will be re-spread throughout the works areas where possible. This may help to prevent barriers to migration as the accumulated materials are likely to continue to accumulate overtime, which has potential to result in a barrier to migration within these areas.

The dry working area has potential to result in a barrier to migration of QI designated species of Lough Gill SAC, as well as the migratory species of the Cummeen Strand/Drumcliff Bay SAC (Sligo Bay) SAC which may utilise this section of the Garavogue River on occasion. The species which may be adversely affected by the Proposed Works in relation to barrier to migration include:

- [1095] Sea Lamprey *(Petromyzon marinus)*
- [1096] Brook Lamprey *(Lampetra planer)*
- [1099] River Lamprey *(Lampetra fluviatilis)*
- [1106] Salmon *(Salmo salar)*

Mitigation

- The dry working area required for the in-stream works will only span half of the width of the river at any given time. The river will be left to flow through the remaining half of the river.
- The riverbed scour repairs upstream of the bridge will involve re-spreading accumulated materials on the riverbed where scour damage has occurred.
- The finished river level will not change from the existing levels.
- Following the completion of the construction phase, all materials remaining within the dry working area and all bunding materials (i.e. sandbags and plastic membranes) will be removed from the river. No materials shall be left within the river when the dry working area is rewet.

Residual Impacts

No residual effects via barrier to migration of QI species during construction are predicted once the above mitigation measures have been implemented.

6.2.1.2 Disturbance to Otter

The Proposed Works will involve works directly within the Garavogue River, which is designated as part of Lough Gill SAC. The Otter *(Lutra lutra)* is a designated QI species of this SAC. There was no evidence of otter activity both upstream or downstream of the Proposed Works. However, by taking a precautionary approach, there is potential that the construction phase of the Proposed Works may lead to adverse disturbance effects to the Otter which may utilise the river for commuting/foraging. The following measures to control noise will be in place to ensure that there are no adverse effects on the Otter as a result of the construction phase of the Proposed Works, including the proposed in-stream works within the Garavogue River.

- A pre-commencement survey for otter will be carried out prior to any works commencing. Should an otter holt be recorded within 150m of the proposed works, a derogation license will be obtained from NPWS and works carried out in accordance with NRA (2006) Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes. The otter survey will be carried out no more than 10 months in advance of construction works commencing.
- All plant and equipment for use will comply with Statutory Instrument No 359 of 1996 “European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1996”.
- Operating machinery will be restricted to the dry working area created within the river and the construction site compound at street level.
- Work will be completed during daylight hours only. No lighting will be utilized during the construction phase.
- Regular maintenance of plant will be carried out in order to minimise noise emissions.

No residual effects via disturbance to otter during construction are predicted once the above mitigation measures have been implemented.

6.2.1.3 Water Quality Deterioration

A potential for adverse effects via deterioration of surface water quality was identified, which has potential to affect the aquatic habitat for the QI designated habitats and species of Lough Gill SAC and Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC, as well as the SCI designated species and supporting habitat of the Cummeen Strand SPA.

Scour repair activities on the bridge abutments will require the use of high-strength self-compacting concrete. The de-vegetation works will require steam cleaning and the use of lime-mortar on the bridge arches. Entry of cement-based products into surface watercourses or directly into watercourses represents a risk to the aquatic environment.

These activities could result in the release of suspended sediment load or polluting materials to surface watercourses. This has potential to adversely affect the water quality and fish stocks in the Garavogue River and receptors further downstream.

General Water Quality Measures

- The construction site compound area will be surrounded with solid fencing to prevent surface water run off to the river. (Figure 6-2)
- Access routes will be clearly marked / identified. Access during construction to any working areas will be restricted to land within the outlined works area. (Figure 6-1)
- No works will take place during periods of high rainfall to reduce run-off, potential siltation of watercourses and potential inundation of the dry working area. 'High rainfall' is defined as follows:
    - Rainfall >10 mm/hr (i.e. high intensity localised rainfall event)
    - Rainfall >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day) or,
    - Rainfall total greater than monthly average recorded in 7 consecutive days (prolonged heavy rainfall over a week).

Waste Management

- All waste will be collected in skips at street level and the site will be kept tidy and free of debris at all times.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or recycling.
- All construction waste materials will be stored within the confines of the construction site compound, prior to removal from the site to a permitted waste facility.

Stockpiling Areas

- Stockpiling of materials will be carried out temporarily within the dry working area and periodically removed throughout the works. No stockpiled materials will be left within the dry working area overnight.
- Temporary stockpiling will take place within the materials storage area in the construction site compound, as outlined in Figure 6-1.

Instream works

- All works will be undertaken during dry weather periods (see definition above) and when river levels are low.
- No works will be undertaken during Spring Tides. All materials and machinery will be removed from the site prior to any Spring Tides or during periods of heavy rainfall.
- Prior to the commencement of works, Inland Fisheries Ireland (IFI) will be notified, and no instream works shall be carried out during the closed season for instream works (October 1st to June 30th). Any in-stream works associated with the Proposed Works will only be carried out during the fisheries open season which is from **1st July to 30th of September** each year.
- All construction methods will adhere to Inland Fisheries Ireland (2016) *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.*
- No instream works will be carried out outside of dry working area
- The dry working area will be fully sealed using 1-Tonne bags filled with clean inert sand to avoid any water ingress. Smaller sandbags will also be used to fully seal the inside of the dewatering area from excessive water ingress, and to weigh down the impermeable plastic membrane.
- The working area will be electro-fished by qualified personnel in advance of dewatering the works area.

Dewatering

- A sump will be dug within the proposed dry working area.
- A pump will be located within the construction site compound at street level. Dewatering of the dry working area will be carried out by pumping the water out of the sump in the bunded, dry working area, through the pump system located within the construction site compound, which will be fitted with a silt buster. The silt bag or siltbuster will allow the water to flow through the geotextile fabric and will trap any of the finer silt and sediment remaining in the water
- The pump located within the construction site compound will be bunded.
- A silt curtain will be established downstream of the dry working area, attached to the bankside.
- The pumped water from the dry working area will be pumped through the silt buster into the area confined by the silt curtain within the Garavgue River. The mouth of the return pipe will be located behind the silt curtain within the river.
- Automated turbidity metres will be installed upstream and downstream of the proposed works area for suspended solids and these will be monitored regularly by an ECoW. If there is a 20% difference between the downstream reading and the upstream reading, then all works will be halted until the source of the problem is rectified.
- All works will be undertaken during dry weather periods (see definition above) and when river levels are low.
- No tools or potentially toxic materials will be stored or left within the dry working area overnight or when there is danger of the dry working area being inundated with water.
- Bio-security measures such a washing of vehicles, plant and equipment prior to mobilisation and de-mobilisation will be adhered to as detailed in the biosecurity measures in Section 6.2.1.4 below
- Outside of working hours, plant machinery will be parked within the dedicated vehicle parking area in the construction site compound.
- Rewetting of the dry working area will only take place once all concrete is completely cured.

Cement-based Products

- All concrete will be transferred to the dry working area by chute from the construction site compound into a fully sealed, bunded container.
- All concrete placing will be conducted under controlled conditions to prevent any potential runoff to the river.
- All formwork will be adequately constructed and sealed to prevent leakage or spillage and will have sufficient capacity to support all poured concrete.
- pH checks will be undertaken within the river prior to the commencement of works in order to get a baseline pH value. Regular pH checks will be carried out on any pumped water from the dry works area during cement works. If there is a significant difference in pH between the pumped water and baseline pH reading, then all works will be halted until the source of the problem is rectified.
- No batching of wet concrete will occur within the dry working area.
- Only ready-mixed, self-compacting wet concrete products and pre-cast concrete will be used within the dry working area for the scour repairs on the bridge piers. No mixing of wet concrete will occur within the riverbed at any time.
- Raw or uncured waste concrete shall be disposed of by removal from the site.
- Concrete trucks will be directed back to their batching plant for washout.
- Clearly visible signs shall be placed in prominent locations close to concrete pour areas, stating that washout of concrete lorries is not permitted on the site; and,
- Concrete pour sites shall be free of standing water to mitigate the risk of run-off being polluted with cementitious material.
- Large concrete pours shall be avoided where prolonged periods of heavy rain are forecast, and covers shall be available and used for freshly placed concrete to avoid the surface washing away in heavy rain.
- The de-watered area will only be re-wet once all concrete has been fully cured.

Hydrocarbon Control

- No vehicles or machinery requiring hydrocarbons will be used within the dry working area on the riverbed. The only machinery required to be used within the dry working area will be an electric 1.5 tonne mini digger.
- The storage of oils, fuel, chemicals, hydraulic fluids, etc. will be undertaken in accordance with current best practice for oil storage (BPGCS005, Enterprise Ireland[15]) on an impervious base within a bund and appropriately secured.
- Any fuel storage required will be stored at street level, outside of the in-stream works, within a dedicated materials storage area at street level. See Figure 6-1 below for the location.
- All machinery operating on-site will be steam-cleaned in advance of works and routinely checked to ensure no leakage of oils or lubricants occurs.
- Potential impacts caused by any spillage of fuels, lubricants or hydraulic oils will be reduced by keeping spill kits at locations within the construction site compound at street level, and accidental spills will be immediately contained, and the contaminated soil removed from the area and properly disposed of.
- Oil booms and oil soakage pads will be kept at the construction site compound and fuel storage area to deal with any accidental spillage.
- All fuels, lubricants and hydraulic fluids shall be kept in secure bunded areas at the dedicated storage area. The bunded area shall accommodate 110% of the total capacity of the containers within it.

[15] Best Practice Guide BPGCS005 Oil Storage Guidelines

- Containers shall be properly secured to prevent unauthorised access and misuse. An effective spillage procedure shall be put in place with all staff properly briefed. Any waste oils or hydraulic fluids shall be put in place with all staff properly briefed. Any waste oils or hydraulic fluids shall be collected, stored in appropriate containers and disposed of offsite in an appropriate manner.
- No refuelling will take place within the construction site compound. Refuelling will only take place at a petrol station.
- Spill-kits and hydrocarbon absorbent packs will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment;
- All plant and machinery shall be regularly maintained and serviced to minimise release of hydrocarbons.
- Contractors will establish dedicated secure areas at the construction site compound for the storage of fuel and chemicals in mobile bowsers.

Ecological Clerk of Works (ECoW)

- An Ecological Clerk of Works (ECoW) will be present during the entirety of the site set up of the in-stream works and the de-watering process.
- The ECoW will make regular visits to the site throughout the construction phase of the Proposed Works. A minimum of weekly visits will take place during the in-stream works, and details of the functionality and adherence to mitigation measures will be recorded during each visit.
- All mitigation measures will be thoroughly inspected, and the ECoW will initially be present on a daily basis until the site is set up and construction is underway.
- All site visit reports and documentation will be collated into a final report to ensure compliance with the mitigation measures outlined in this EcIA.
- The ECoW will have the authority to stop all of the works on site if the ECoW has reasonable doubt that the prescribed mitigation measures are not being adhered to properly.
- All site visit reports and documentation will be collated into a final report which will be sent to Sligo County Council for review to ensure compliance with the mitigation measures outlined in the NIS.
- The ECoW will have the authority to stop all of the works on site if the ECoW has reasonable doubt that the prescribed mitigation measures are not being adhered to properly

Residual Impacts

No residual effects via water quality deterioration during construction are predicted once the above mitigation measures have been implemented.

6.2.1.4 Biosecurity

During the river habitat assessment carried out on the 13th of March 2025, The Third Schedule (European Communities (Birds and Natural Habitats) Regulations (S.I. 477 of 2011)) species Zebra mussel *(Dreissena polymorpha)* was recorded within the proposed works area in the Garavogue River.

Given that instream works are needed, there is a risk of introduction of invasive species, including invasive plants and invasive fauna (e.g molluscs) or disease (e.g crayfish plague) to the aquatic environment via machinery, equipment or clothing. This has potential to adversely affect the aquatic designated QI species of Lough Gill SAC, Cummeen Strand/Drumcliff Bay SAC (Sligo Bay) and the Cummeen Strand SPA.

The electrofishing practitioner will be required to submit a method statement detailing biosecurity protocol for this element of work for approval by IFI before grant of the Section 14 licence.

The following mitigation measures will be adhered to in relation to biosecurity during the construction phase of the Proposed Works.

Biosecurity Protocol for Instream Works

- Ensure staff are fully aware of this protocol before commencement of works
- Instream works are to be carried out in line with Inland Fisheries Ireland (IFI) *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters as well as IFI (2010) Biosecurity Protocol for Field Survey Work as well as IW-AO-SOP-010 Biosecurity Standard Operating Procedure for Aquatic Sampling.*
- All plant and equipment to be cleaned thoroughly and disinfected with 1% Virkon solution or other proprietary disinfectant before entering the water, including all machinery, pumps, hand tools, ropes, etc.
- All plant and equipment and clothing to be brushed down and disinfected with 1% Virkon solution or other proprietary disinfectant.
- Any imported materials must be certified free of invasive species. All imported materials will be fully cleaned down using 1% Virkon solution or other proprietary disinfectant
- Machinery will be cleaned using high-pressure steam cleaning, with water > 40 degrees Celsius.
- Disinfectant to be applied to the undercarriage and wheels of the vehicle and trailer after steam cleaning.
- Footwear will be dipped in or scrubbed with a disinfectant solution (1% solution of Virkon Aquatic or another proprietary disinfection product) and thoroughly dried afterwards.
- All PPE will be visually inspected, and any attached vegetation or debris removed.
- The above cleaning and disinfection procedures will be carried out on all plant, machinery, equipment and clothing before entering the instream works area and after leaving the instream works area before working on a different site.

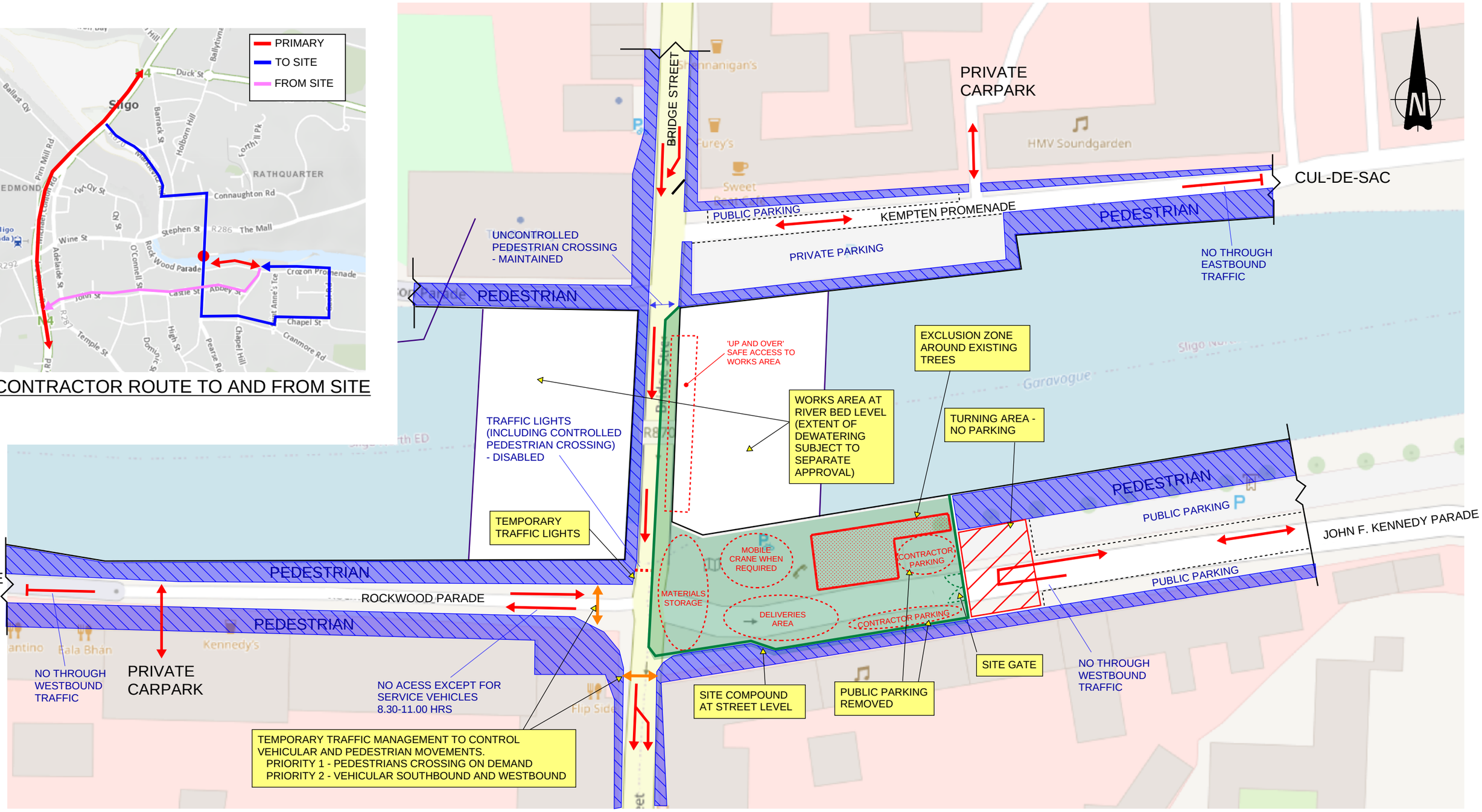
General Site Hygiene

- It will be ensured that all plant, machinery and equipment has been cleaned and brushed down before entering the dry working area to prevent introduction of invasive species into the river.
- Any necessary importation of materials into the dry working area will be certified clean material free of invasive species.

Residual Impacts

No residual effects via spread of invasive species during construction are predicted once the above mitigation measures have been implemented.

CONTRACTOR ROUTE TO AND FROM SITE



TEMPORARY TRAFFIC MANAGEMENT AND SITE SETUP

PUNCH consulting engineers	PROJECT:	224138 MARKIEVICZ BRIDGE REPAIRS	
	SKETCH TITLE:	CONSTRUCTION TRAFFIC	
	SKETCH NO.	2224138-PUNCH-XX-XX-SK-CS-0006	
	DESIGNER:	KOR	DATE: 18/11/2024

Map Legend

- Extent of Proposed De-watered Area
- Construtsion Site Compound
- Solid Fencing
- Nursery habitat fencing (ECoW)
- Suitable Nursery Habitat

N

Drawing Title

Mitigations Map

Project Title

Markievicz Bridge Scour Repairs

Drawn By	Checked By
EF	PR
Project No.	Drawing No.
220943	Figure 6-2
Scale	Date
1:625	27/03/2025

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6.2.2 Operational Phase

The following pathways for indirect effect to the Lough Gill SAC [001976] and Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627] include the following:

- Loss of QI Supporting Habitat (Riverbed Habitat)
- Barrier to Migration of QI species (Ecological Corridor)

6.2.2.1 Loss of QI Supporting Habitat (Riverbed habitat)

Suitable habitats for both spawning and juvenile lamprey will be retained following completion of the works and there will be no residual impact as a result of the Proposed Works.

6.2.2.2 Barrier to Migration of QI species (Ecological Corridor)

Following the completion of the construction phase, all materials remaining within the dry working area and all bunding materials (i.e. sandbags and plastic membranes) will be removed from the river. No materials will be left within the river when the dry working area is rewet. Therefore, there will be no barriers within the river remaining during the operational phase of the Proposed Works.

Riverbed materials which have accumulated as a result of the riverbed scour damage will have been re-spread throughout the works areas where possible during the construction phase. The re-spreading of accumulated riverbed materials may help to prevent future barriers to migration during the operational phase. Therefore, the operational phase of the Proposed Works will not result in any further barriers to migration of the QI designated species of the Lough Gill SAC [001976] and Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [000627].

7. ASSESSMENT OF RESIDUAL ADVERSE EFFECTS

The potential for residual adverse effects on each of the individual relevant Qualifying Features of the Screened In European Sites following the implementation of mitigation, is assessed in this section of the report.

Based on the above, in view of best scientific knowledge, on the basis of objective information, there is no potential for adverse effect on the identified QIs/SCIs and their associated targets and attributes, or on any European Site Potential pathways for effect have been robustly blocked through measures to avoid impacts and the incorporation of best practice/mitigation measures into the project design.

Taking cognisance of measures to avoid impacts and best practice/mitigation measures incorporated into the project design which are considered in the preceding section, the Proposed Works will not have an adverse effect on the integrity of any European Site.

The proposed project will not prevent the QIs/SCIs of European Sites from achieving/maintaining favourable conservation status in the future as defined in Article 1 of the EU Habitats Directive. A definition of Favourable Conservation Status is provided below:

> *'conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2; The conservation status will be taken as 'favourable' when:*
>
> - *Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
> - *The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
> - *There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.'*

Based on the above, it can be concluded in view of best scientific knowledge, on the basis of objective information that the Proposed Works will not adversely affect the Qualifying Interests/Special Conservation Interests associated with any European Site.

8. ASSESSMENT OF CUMULATIVE EFFECTS

A search and review in relation to plans and projects that may have the potential to result in cumulative and/or in-combination impacts on European Sites was conducted. This assessment focuses on the potential for cumulative in-combination effects on the European Sites where potential for adverse effects was identified in Section 4 of this report. This included a review of online Planning Registers, development plans and other available information and served to identify past and future plans and projects, their activities and their predicted environmental effects. A list of the plans and projects considered is provided in Appendix 1. The following Plans were reviewed:

- Sligo County Development Plan 2024-2030
- Northern & Western Regional Assembly Regional Spatial and Economic Strategy 2020-2032
- 4th National Biodiversity Action Plan 2023-2030

8.1 Other Plans

Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the Proposed Works and was verified on the 18.03.2025. The material was gathered through a search of relevant online Planning Registers, review of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities and their environmental impacts. All relevant projects were considered in relation to the potential for in combination effects. All relevant data was reviewed (e.g. individual NISs, EISs/EIARs, layouts, drawings etc.) for all relevant projects where available. The plans and projects considered include those listed in Appendix 1. These largely consisted of a number of small-scale small scale private dwelling constructions and/or extensions to private dwellings, as well as other project types as listed in Appendix 1.

8.2 Conclusion of Cumulative Assessments

The main potential for in-combination effect from the above plans/projects is related to construction stage pollution events. In light of the above information and the mitigation measures detailed within this NIS, the requirement for the projects above to undergo AA and apply mitigation measures as required, no potential for in-combination effects to undermine the integrity of the European sites from the Proposed Works with other plans or projects is predicted.

In the review of the projects and plans that was undertaken, no connection that could potentially result in additional or cumulative adverse effects to European Sites was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the Proposed Works.

9. CONCLUDING STATEMENT

This NIS has provided an assessment of all potential direct or indirect adverse effects on European Sites.

Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction and operation of the Proposed Works does not adversely affect the integrity of European sites.

Therefore, it can be objectively concluded that the Proposed Works, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site.

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APPENDIX 1

LIST OF PLANS AND PROJECTS

1. ASSESSMENT OF CUMULATIVE EFFECTS

1.1 Plans

The following development plans have been reviewed and taken into consideration as part of this assessment:

- Sligo County Development Plan 2024-2030
- Northern & Western Regional Assembly Regional Spatial and Economic Strategy 2020-2032
- 4th National Biodiversity Action Plan 2023-2030

The review focused on policies and objectives that relate to Natura 2000 sites and natural heritage. Policies and objectives relating to sustainable land use were also reviewed.

Plan	Key Policies/Issues/Objectives Directly Related to European Sites in The Zone of Influence	Assessment of development compliance with policy
Sligo County Development Plan 2024-2030	**Biodiversity** **P-BD-1** Protect, conserve, enhance and sustainably manage the natural heritage, biodiversity, geological heritage, landscape and environment of County Sligo. **P-BD-2** Protect and, where possible, enhance the plant and animal species and their habitats that have been identified under EU Habitats Directive (92/43/EEC), the EU Birds Directive (2009/147/EC), European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011) as amended, Flora (Protection) Order 2015, the Wildlife Act 1976 (as amended), and the Wildlife (Amendment) Act 2000 as amended, including all statutory instruments made under each act. **P-BD-3** Ensure that the ecological impact of all development proposals on habitats and species are appropriately assessed by suitably qualified professionals, in accordance with best practice guidelines, taking full account of the precautionary principle where uncertainty exists. **P-BD-4** Minimise adverse impacts of proposed developments on existing habitats (whether designated or not) by including mitigation and/or compensation measures as appropriate. **Designated Sites for Nature Conservation** **P-DSNC-2** Promote the maintenance and, as appropriate, achievement of 'favourable conservation status' of habitats and species in association with the National Parks and Wildlife Service (NPWS). **P-DSNC-3** Carry out an appropriate level of assessment for all development plans, land-use plans and projects that the Council authorizes or proposes to undertake or adopt, to determine the potential for these plans or projects to impact on designated sites, proposed designated sites or associated ecological corridors and linkages in accordance with the Habitats Directive. All appropriate assessments shall be in compliance with the provisions of Part XAB of the Planning and Development Act 2000 (as amended).	The Development Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network. No potential for cumulative effects, considered in conjunction with the proposed development were identified.

	P-DSNC-4 Ensure that all development proposals are subject to the process of Screening for Appropriate Assessment and subsequent stages of Appropriate Assessment, as relevant, carried out to the satisfaction of the Planning Authority, in consultation with National Parks and Wildlife Service, as appropriate. **O-DSNC-1** Identify any areas of high nature conservation value which are of major importance for wild fauna and flora in accordance with Article 10 of the Habitats Directive, and which have not been previously identified. **O-DSNC-2** Undertake appropriate surveys and collect data to provide an evidence-base to assist the Council in meeting its obligations under Article 6 of the Habitats Directives (92/43/EEC) as transposed into Irish Law, subject to available resources. **Protected Species** **P-PS-1** Ensure that development does not have a significant adverse impact incapable of satisfactory mitigation on plant, animal or bird species protected by law. **P-PS-2** Consult with the National Parks and Wildlife Service (DHLGH) and take account of any licensing requirements when undertaking, approving, and authorising development which is likely to affect plant, animal or bird species protected by law. **Nature Conservation Outside Designated Sites** **P-NCODS-3** Ensure that proposals for development protect and enhance biodiversity, wherever possible, by minimising adverse impacts on existing habitats and by including mitigation and/or compensation measures, as appropriate, which ensure that biodiversity is enhanced. **P-NCODS-5** Ensure that no ecological networks, or parts thereof which provide significant connectivity between areas of local biodiversity, are lost without remediation as a result of implementation of this Plan. **Invasive Species** **P-INV-1** Prevent and control the spread of invasive plant and animal species within the county	

	Inland Waters **P-INW-1** Protect rivers, streams and other water courses and their associated Core Riparian Zones (CRZs) from inappropriate development and maintain them in an open state, capable of providing suitable habitats for fauna and flora. Structures (e.g., bridges) crossing fisheries waters shall be clear-span and shall be designed and built in consultation with Inland Fisheries Ireland. **P-INW-2** Protect and enhance biodiversity richness by protecting rivers, stream corridors and valleys by reserving land along their banks for ecological corridors, maintaining them free from inappropriate development and discouraging culverting or realignment. **O-INW-2** Require that runoff from a developed area does not result in deterioration of downstream watercourses or habitats, and that pollution generated by a development is treated within the development area prior to discharge to local watercourses. **Water Quality** **P-WQ-2** Promote compliance with environmental standards and objectives established for surface and groundwater bodies under the Water Framework Directive (WFD). **Architectural Heritage** **P-ARH-5** Protect important non-habitable structures such as historic bridges, harbours, railways or non-structural elements such as roadside features (e.g. historic milestones, cast-iron pumps and post-boxes), street furniture, historic gardens, stone walls, landscapes, demesnes and curtilage features, in cases where these are not already included in the Record of Protected Structures.	
Northern & Western Regional Assembly Regional Spatial and Economic Strategy 2020-2032	**5.4 Our Natural Heritage** **RPO 5.4** Encourage the prioritisation of Site-Specific Conservation Objectives (SSCO) for all sites of Conservation Value, designated in EU Directive (i.e. SACs, SPAs) to integrate with the development objectives of this Strategy. **RPO 5.5** Ensure efficient and sustainable use of all our natural resources, including inland waterways, peatlands, and forests in a manner which ensures a healthy society a clean environment and there is no net	The Development Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network. No potential for cumulative effects, considered in conjunction with the proposed development were identified.

	contribution to biodiversity loss arising from development supported in this strategy. Conserve and protect designated areas and natural heritage areas. Conserve and protect European sites and their integrity **RPO 5.7 -** Ensure that all plans, projects and activities requiring consent arising from the RSES are subject to the relevant environmental assessment requirements including SEA, EIA and AA as appropriate **RPO 5.14** Support the conservation of the region's National Monuments and built heritage, being structures that are of special architectural, historic, archaeological, artistic, cultural, scientific, social or technical interest that are of Regional Significance or above.	
4th National Biodiversity Action Plan 2023-2030	› **Objective 1: Adopt a Whole-of Government, Whole of-Society Approach to Biodiversity.** Proposed actions include capacity and resource reviews across Government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan. › **Objective 2: Meet Urgent Conservation and Restoration Needs.** Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across Government. › **Objective 3: Secure Nature's Contribution to People.** Actions highlight the relationship between nature and people in Ireland. These include recognising the tangible and intangible values of biodiversity, promoting nature's importance to our culture and heritage and recognising how biodiversity supports our society and our economy. › **Objective 4: Enhance the Evidence Base for Action on Biodiversity.** This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts. › **Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives.**. Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity.	The 4th National Biodiversity Action Plan has been reviewed in terms of its main objectives and policies relating to sustainable land use, biodiversity and objectives that will strengthen the contribution to international biodiversity initiatives. The proposed development will not be contradictory to the Action Plan's policies and objectives.

1.2 Other Projects

The potential for the proposed works to contribute to a cumulative impact on European Sites was considered. The online planning system for Sligo County Council was consulted on the 18/03/2025.

A total of 39 applications within the vicinity of the Proposed Development were reviewed and comprised mainly of small-scale private dwelling constructions and/or extensions to private dwellings. In particular, the following projects were reviewed within the vicinity of the Proposed Development:

- Permission for 1. Refurbishment works to protected structure no. 163 SE in the Sligo County Development Plan 2017-2023, The work will include internal modifications to facilitate ground floor entrance lobby and commercial space circa 213m2. Change of use at first and second floor level from commercial to residential use creating 6 no. 1 bedroom apartments and 2 no. 3 bedroom apartments including elevational upgrade works. 2. Demolition of existing rear extensions circa 1,450 m2 forming part of protected structure no. 163 SE in the Sligo County Development Plan 2017-2023. 3. Proposed 4 Storey rear building linked to the protected structure to accommodate 9 no.1 Bedroom apartments, 19 no. 2 bedroom apartments, lift and access stairs and associated circulation space. 4. ESB Substation building circa 24m2 5. Single Storey refuse and storage building circa 61m2 6. Vehicular access via existing Abbey Streetcar Park entrance, 7. All surface car parking, landscaping and associated site works and service connections. (Pl ref: 2460166).
- The development will consist of planning permission for (1) change-of-use from existing retail unit (forming part of protected structure RPS Ref. 202SE/NIAH 32007130) to 1no. accommodation unit; (2) two-storey rear extension above existing flat roof extension to existing building (protected structure RPS Ref. 202SE/NIAH 32007130) to comprise of 2no. accommodation units; (3) internal alterations to existing accommodation unit above retail unit (protected structure RPS Ref. 202SE/NIAH 32007130); (4) change-of-use from public house to accommodation to form extension to existing accommodation unit at ground floor; (5) two-storey extension above existing ground-floor building to form extensions to 2no. existing apartments at first and second floor level; (6) construction of three-storey extension to rear of existing building, to form access stairwell/lobby to existing and proposed accommodation units; (7) change-of-use from public house (known as Leitrim Bar) to 8no. accommodation units; (8) two-storey rear extension above flat roof of existing public house (known as Leitrim Bar) to comprise of 2no. accommodation units; (9) construction of two-storey extension to rear of public house (known as Leitrim Bar), to form access stairwell/lobby to proposed accommodation units; (10) change-of-use from public house (known as O'Neill's Celtic Bar) to 2no. accommodation units; (11) conversion of attic space above existing accommodation unit to provide 1no. additional accommodation unit; (12) two-storey rear extension above flat roof of existing public house (known as O'Neill's Celtic Bar) to comprise of 2no. accommodation units; (13) modifications to fenestration, including additional, repositioning and removal together with all associated siteworks. (Pl ref: 2460081).
- Development at this site of 0.24 hectares at Swanpoint, including works to the existing quay wall a protected structure in the Sligo County Development Plan 2017-2023 Record of Protected Structures. The development will consist of: a) amendments and completion of unfinished Swanpoint building previously approved under planning ref 0470099 to provide 54 no. hotel bedrooms and circa. 2,946 m2 of office space in place of the previously approved 64 no. apartments and 2 no. retail units, b) retention of as constructed elevations, c) ground and first floor extensions circa. 136 m2 to form part of the proposed office space, d) new 2nd floor link between existing hotel and Swanpoint building circa 37 m2, e) refurbishment of the existing quay wall a protected structure as per the Sligo County Development Plan 2017-2023), f) extension of 2 no. existing stair cores and associated link corridors, g) proposed roof top services including heat pumps and solar panels, h) proposed landscape plan and all associated site works. The documents to be submitted as part of this planning application will include a Natura Impact Statement. (Pl ref: 19446).
- Development consisting of the construction of an LPG gas compound consisting of 3 x 2 Tonne underground gas storage tanks with connection to existing boiler houses, truck set down/filling area and 4 additional car park spaces on the site at Markievicz House, Barrack Street, Rathquarter, Sligo.

Constance Markievicz House is a Protected Structure on the site and the proposed development lies within its curtilage. (Pl ref: 20199).

- Permission for a development consisting of the construction of 64 accommodation units in 5 separate blocks with the following typology: 2 no. accommodation blocks with 8 no. Three bed units and 3 no. accommodation blocks with 16 no. Two bed units. Additional works to the site include landscaping, play areas, proposed 204 car parking spaces, boundary treatment, proposed new main entrance and all associated site works and services within the curtilage of a protected structure RPS Ref 12 SE and 13 SE/NIAH 32012037 as identified in the Sligo County Development Plan 2017-2023. (Pl ref: 20445).
- Permission for a development consisting of the construction of a new part single storey/part 2 storey 12 bed residential Hospice Facility extension adjoining Connaught Road, including associated support accommodation. Refurbishment and minor demolitions of the existing hospice facility including existing house and inpatient areas to become support accommodation. The development involves the construction of an undercroft car park, reconfiguration of existing associated car park, extensive landscape scheme to west and south and general minor associated works. The new extension is within the curtilage of a protected structure. (Pl ref: 2046).
- Permission for a development comprising; 1. Accessibility and aesthetic improvements to the Out-Patient's entrance including the provision of a covered ramp, stairs and lift (418m²) and refurbishment of the existing OPD concourse 2. Retention of covid measures to segregate the Emergency Department (red zone) from General Hospital Circulation (green Zone) including temporarily moving the principle public access to The Outpatients Department Entrance on Level 3 on the south façade (The Mall Carpark Side) 3. Provision of 2 no. bus shelters for the shuttle bus service 4. Creation of a new pedestrian access off The Mall giving direct access to the Medial Beds Department under croft (PL18/392 & PL20/375 refer) and temporary main Entrance, with canopy over 5. Provision of a covered walkway to the temporary main entrance 6. Construction of a new internal access road off the main hospital access road, associated retaining walls and site works 7. Alterations to The Mall entrance to improve traffic flow, car park layout, site levels and cycle storage provisions all necessary to enable the above Medical Beds development 8. Minor alterations to parking and road layouts adjacent to the Renal Department to facilitate phasing and delivery of the Medical Beds development (PL18/392 & PL20/375 refer) with minimal disruption or loss of capacity 9. Proposed new signage to assist wayfinding traffic management and orientation. Including all associated landscaping, site works and services. Sligo University Hospital is a Protected Structure. The proposed works are not in immediate contact with the protected structure. (Pl ref: 2260012).
- Planning for (a) Proposed extension of a totalling circa. 141.2 sqm to the rear of the existing building consisting of the following: (b) Retail extension of 15.1 sqm at ground floor to the rear of existing Zulu shop (c) First Floor extension of 15.1 sqm to form part of a duplex apartment (d) Second floor extension of 111 sqm to form duplex apartments (e) Internal reconfiguration and layout to accommodate the 4 duplex apartments (f) Modification of existing external door from Lower Knox Street to access the apartments (g) Site layout alterations to facilitate bin storage, bike and car parking space for the apartments. (Pl ref: 2460429).
- Permission for works, including works to the existing quay wall a protected structure in the Sligo County Development Plan 2017 – 2023 Record of Protected Structures. The development will consist of: a) Amendments of the unfinished Swanpoint building previously approved under planning ref 0470099 to provide 53 no. hotel bedrooms in place of previously approved apartments and completion of 32 no. apartments, b) Change of use of ground floor apartments to retail unit, and completion of ground floor restaurant unit. c) Retention of as-constructed elevations. d) Ground and first floor extensions circa. 231 sqm to form proposed hotel access and extension to restaurant unit. e) Proposed 8th-floor apartment mezzanine level circa. 34 sqm. f) Refurbishment of the existing quay wall a protected structure as per the Sligo County Development Plan (2017-2023) g) Extension of 1 no. existing stair core and associated link corridor. h) Proposed rooftop services including heat pumps and solar panels. i) Proposed landscape plan and all associated site works. (Pl ref: 2560004)