



Applied Ecology Ireland

Proposed Replacement of  
Accommodation Bridges  
(Pipe Culverts) at  
Clashaganny, Milltown, Co.  
Galway (C3/26/5 – UB2, UB6  
and UB10)

Natura Impact Statement

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# 1 INTRODUCTION

## 1.1 Project Background

Applied Ecology Ireland Ltd was commissioned by the Office of Public Works (OPW) to produce a Natura Impact Statement (NIS) to accompany an application for the replacement of 3 no. existing box culvert bridge structures with new pipe culvert bridges along OPW Channel C3/26/5 – UB2, UB6 and UB10 at Clashaganny, Milltown, Co. Galway. These proposed works are located within the OPW's Corrib Arterial Drainage Scheme. Please refer to Figure 1.1 for a geographical context of the proposed application area.

The proposed works include demolition and removal of 3 no. existing pipe culvert bridge structures (UB2, UB6 and UB10), and the construction of new pipe culvert bridges, designed in accordance with the OPW Standard Design (Please refer to Drawing: 2480-DR-003-P2 in Appendix I).

The proposed works are located between 300m and 1.75km upstream in drainage channel C3/26/5 of the Lough Corrib SAC (Site Code: 000297).

## 1.2 Report Objective

This document screens and evaluates likely significant effects of the proposed project upon European designated sites (Natura 2000). A scientific and objective approach has been used to identify these Natura 2000 sites, such as hydrological and/or ecological connections, and to assess whether their conservation objectives are at risk from the development for specific reasons. This report is conducted in line with the requirements of Article 6(3) of the EU habitats Directive (92/43/EEC) and the National Parks and Wildlife Service (NPWS) Guidance for Planning Authorities (2009).

It is intended that the information contained within this document will form the basis for the Article 6(3) Appropriate Assessment process which will be completed by the Competent Authority.

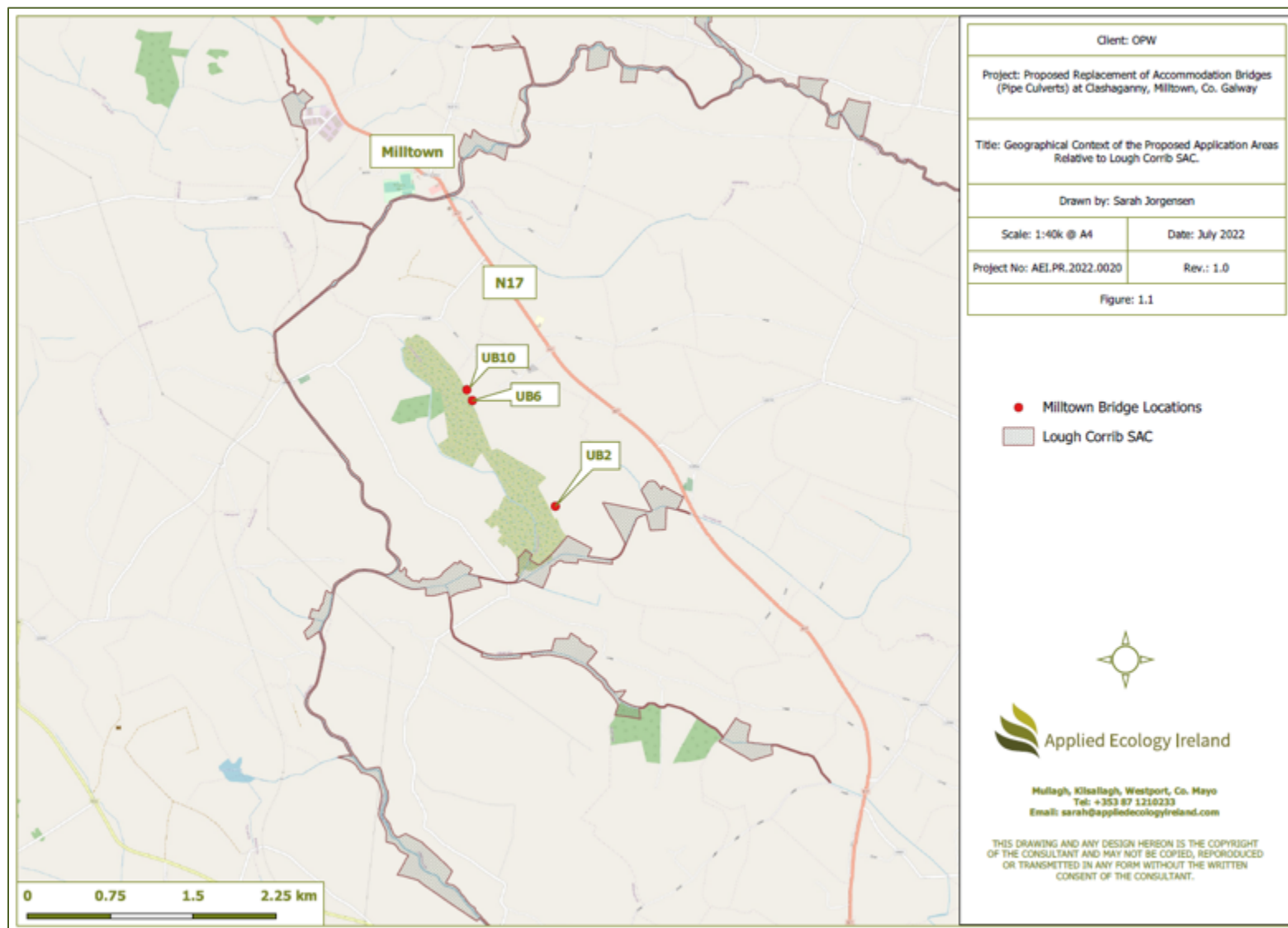


Figure 1.1: Geographical context of the proposed application area.

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## 2 METHODOLOGY

### 2.1 Legislative Context

This section outlines and describes the relevant pieces of legislation within the context of Appropriate Assessment and the process by which Appropriate Assessment is undertaken.

#### 2.1.1 Arterial Drainage Act 1945

Under the Arterial Drainage Act 1945, the Office of Public Works (OPW) is responsible for conducting maintenance on the Corrib Arterial Drainage Scheme.

OPW is the public authority and will complete a a statutory consultation with the Development Applications Unit (DAU) of the Dept. Housing Local Government & Heritage and a public consultation process in accordance with S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011) (as amended) on the likely significant effects on the EU sites within the Zone of Influence (Zoi) of the proposed project.

#### 2.1.2 Article 6 of the Habitats Directive

Article 6(3) of the Habitats Directive requires that, in relation to European designated sites (i.e. SACs and SPAs that form the Natura 2000 network), *"any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives"*.

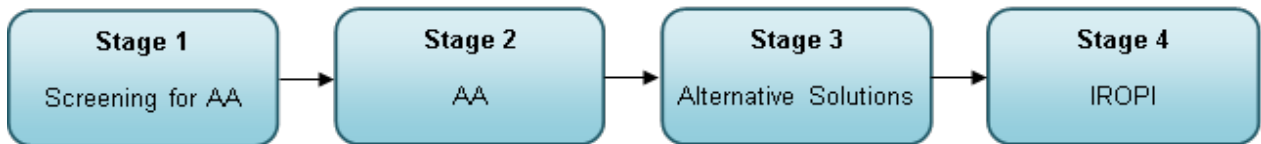
A competent authority (e.g. a Local Authority) can only agree to a plan or project after having determined that it will not adversely affect the integrity of the site concerned. Under Article 2(2) of the Directive, a network of sites of nature conservation importance have been identified by each Member State as containing specified habitats or species requiring to be maintained or returned to favourable conservation status. In Ireland and Northern Ireland, the network consists of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), and also candidate sites, which form the Natura 2000 network.

Under Article 6(4) of the Directive, if adverse impacts are likely, and in the absence of alternative options, a plan or project must nevertheless proceed for imperative reasons of overriding public interest (IROPI), including social or economic reasons, a Member State is required to take all compensatory measures necessary to ensure the overall integrity of the Natura 2000 site. The European Commission are required to be informed of any compensatory measures adopted, unless a priority habitat type or species is present and in which case, an opinion from the European Commission is required in advance (unless for human health or public safety reasons, or of benefit to the environment).



### 2.1.3 Appropriate Assessment Process

Guidance on the Appropriate Assessment (AA) process was produced by the European Commission in 2002, which was subsequently developed into guidance specifically for Ireland by the Department of Environment, Heritage and Local Government (DEHLG, 2009). These guidance documents identify a staged approach to conducting an AA, as shown Figure 2.1.



**Figure 2.1:** The Appropriate Assessment Process (from: Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities, DEHLG, 2009)

#### 2.1.2.1 Screening for Appropriate Assessment

This stage examines the likely effects of a project either alone or in combination with other projects upon a Natura 2000 site and considers whether it can be objectively concluded that these effects will not be significant. In the light of the 2017 case-law ruling [C-323/17], which concluded that “*it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*”, the current screening for appropriate assessment does not take account of measures, such as “best practice construction methods”, intended to avoid or reduce the project’s harmful effects on relevant Natura 2000 sites. This evaluation is presented in a Screening for Appropriate Assessment.

#### 2.1.2.2 Appropriate Assessment

Should the screening stage find that the proposed project or plan has the potential to cause harmful effects on Natura 2000 sites, the impact of the project on the integrity of the Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function. Mitigation measures should be applied to the point where no adverse impacts on the site(s) remain. This evaluation is presented in a Natura Impact Statement (NIS).

#### 2.1.2.3 Alternative Solutions

Should the Appropriate Assessment determine that adverse impacts are likely upon a Natura 2000 site, this stage examines alternative ways of implementing the project that, where possible, avoid these adverse impacts. For the avoidance of doubt, the developer does not purport to place reliance on this stage.

#### 2.1.2.4 Imperative Reasons of Overriding Public Interest (IROPI)

Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the Natura site will be necessary. European case law highlights that consideration must be given to alternatives outside the project area in carrying out the IROPI test. It is a rigorous test which projects are generally considered unlikely to pass. In any event, the developer does not purport to place any reliance on Stage 4.

## 2.2 Relevant Guidance

In the preparation of this NIS, regard has been given to the EU Habitats Directive (1), Part XAB of the Planning and Development Act 2000, and to the relevant guidance, in particular:

- Brew, T., Gilligan, N. (2019) Environmental Guidance: Drainage Maintenance and Construction. Series of Ecological Assessments on Arterial Drainage Maintenance No 13. Environment Section, Office of Public Works, Trim, Co. Meath, Ireland.
- DoEHLG Circular NPWS 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities;
- DoEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environmental Heritage and Local Government;
- European Commission (2021) Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Brussels, 28.9.2021C (2021) 6913 Final;
- European Commission (2019) Managing Natura 2000 Sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC. (2019/C 33/01);
- European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No.477 of 2011) (as amended);
- Inland Fisheries Ireland (2021a). *Guidance Notes for AA Screenings in the Vicinity of Watercourses*.
- Inland Fisheries Ireland (2021b). *Guidance Notes for Natura Impact Statements (NIS) in the Vicinity of Watercourses*.
- National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin (2009). *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities*.
- Office of the Planning Regulator (2021) Appropriate Assessment Screening for Development Management. OPR Practice Note PN01. March 2021.

Throughout the Stage One screening report (Section 5), the line items in *italics* refer to suggested instructions for information to be contained in a screening assessment, from the guidance document ‘*Assessment of Plans and Projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*’, European Commission, 2001.

In order to identify potential ‘In Combination Effects’, other key plans and projects were identified for this area. The following plans, projects or data sources have been considered:

- Galway County Council planning database (<https://www.galway.ie/en/services/planning/online/>)
- NPWS website (<http://webgis.npws.ie/npwsviewer/>)
- EPA website (<https://gis.epa.ie/EPAMaps/>)
- National Biodiversity Data Centre (<http://maps.biodiversityireland.ie/#/Home>)

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## 2.3 Field Survey

A site visit to the proposed application areas was undertaken by Sarah Jorgensen of Applied Ecology Ireland, on 3<sup>rd</sup> June 2022, during which an ecological walkover survey was carried out. The ecological walkover survey was carried out to establish the baseline ecology at each of the three proposed works locations along the drainage channel.

A habitat assessment as per Fossitt (2000) was undertaken within each proposed application area which categorised all habitats present. The baseline assessment also recorded the presence or absence of any invasive plant species, such as Japanese Knotweed *Reynoutria japonica*, within the proposed work area.

An otter survey was also undertaken which involved searching along the riverbanks 150m upstream and 150m downstream of the proposed application area on both sides of the river, as per the methodology outlined in the TII (formerly NRA) publication, “*Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes*” (TII, 2008). Otter surveys can be undertaken throughout the year, though spring is the optimum time when water levels recede, as is the case for this project. All safely accessible areas along both riverbanks were surveyed for the following otter field signs:

- Sleeping and resting places including holts, couches and natal dens
- Holts – breeding sites
- Spraints
- Pathways/trails
- Slides
- Hairs
- Footprints
- Food remains

## 2.4 Statement of Authority

### 2.4.1 Sarah Jorgensen MSc BSc (Hons) ACIEEM

Qualified ecologist Ms Sarah Jorgensen (nee Ingham) graduated in from Anglia Ruskin University, Cambridge with a BSc. (Hons) in Zoology. Following her undergraduate degree, she attained her MSc. in Biodiversity and Conservation from Trinity College Dublin, graduating in 2009.

Sarah has recently established her own company, Applied Ecology Ireland Ltd, offering her expertise in ecological consultancy. Sarah is an ecologist with experience in managing large teams of bird, mammal and habitat surveyors on a number of national ecological projects, in addition to analysing all data gathered by these teams.

A large part of Sarah’s work also involves the output of expertise and recommendations regarding Appropriate Assessments and Environmental Impact Assessments of large-scale developments throughout Ireland. Her day-to-day work regularly includes designing detailed mitigation measures based on constraints regarding various types of developments, as well as undertaking desk-top research into

other matters relating to ecological conservation in Ireland. She is highly experienced with 13 years post graduate practice as a professional ecologist. Sarah also has experience as an Ecological Clerks of Works (ECoW) working with developers on wind farm construction sites, overseeing the implementation and adherence to both wildlife and environmental regulations and providing advice on compliance with the environmental planning conditions.

Sarah carried out the ecological field work for this project and is the author of this report.

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## 3 PROJECT DESCRIPTION

### 3.1 Proposed Site Access

The three sites are located along drainage channel C3/26/5, approximately 2-3km to the southeast of Milltown, Co. Galway via the N17.

Site UB2 is located approximately 1.1km to the west of the N17 and accessed via local roads, and through agricultural land. Sites UB6 and UB10 are located approximately 860m and 845m, respectively, west of the N17, and accessed via the L-6511-9 and L-65111-0 local roads, and through agricultural land. Please refer to Figure 1.1 in Section 1.1.

### 3.2 Proposed Work Methods

#### 3.2.1 Site Management

Prior to works beginning, a site compounds at each site shall be established with designated areas for:

- Welfare Facilities
- Vehicle Parking
- Plant Storage
- Equipment Storage
- Materials Storage

The site compounds shall be secured using 'Heras' style temporary fence panels or livestock fencing whichever is more suitably appropriate. A lockable gate shall also be installed. The site compounds will be set back not less than 50m from the working channel.

#### 3.2.2 Site Preparation

The work areas shall be fenced off to provide safety and security, as required. Livestock fencing shall be installed given the location of the works within agricultural land and if there is livestock present. No works shall begin before the site works area is fully fenced off and secure.

Works will be carried out in a period of sustained dry weather. The Foreman, Site Supervisor and excavator operators shall walk the site in advance of any works proceeding to assess ground conditions, determine suitability of the area for the placement of machinery, location of any services, such as overhead/underground powerlines or if there is a requirement for the use of bog mats.

From the most recent site inspection, it is not envisaged that bog mats will be required for this site. There was also no evidence of underground services or overhead power lines observed in the vicinity of the works area. On all occasions, the excavator operator must be satisfied with the ground conditions upon which they intend to work from.

When the excavator operator decides to position the excavator adjacent to the drain bank, they must ensure the bank is stable, wide enough and has sufficient bearing capacity to accommodate the machine.

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### 3.2.3 Dewatering of Work Areas and Excavations

The method of de-watering the works area at each site will be decided upon after mobilisation to site. Consideration will be given to ground conditions and flow rates. The following options will be considered:

- Damming and channel diversion; or
- Damming and over-pumping.

#### 3.2.3.1 Damming and Channel Diversion

If a channel diversion is to take place, this will be carried out on the right bank as one looks downstream at each site location. A diversion channel will be excavated from a point upstream of the existing pipe bridge and will tie back into the channel at a point downstream of the pipe bridge. A temporary pipe culvert will be installed into the diversion channel and will be stoned over.

Damming will be carried out immediately downstream of the channel diversion location and at a point just upstream of where the diversion channel reconnects with the working channel to ensure a dry working zone. Concrete piping may be used if the ground is required to be reinstated to facilitate works which will also mitigate against the transfer of sediment. Dewatering of works areas/excavations will be carried out in accordance with the OPW's Environmental Protection (EP) 15 - Construction Silt Management. Silt management will be carried out in such a way as to eliminate/minimise the silt load downstream of the works with the use of silt curtains, straw bales, concrete pipes with baffle boards at the inlet to the bypass channel. The dam will be constructed using locally sourced clay material, compacted in 225mm layers along with sandbags. The dam will be constructed to allow a sufficient freeboard above the water level.

The most likely option in this case to minimise silt transfer from the channel diversion will be to dam the downstream reconnection point by compacting several bales of straw held in place with suitably sized boulders/rock. The appropriate no. of straw bales required will be assessed on site and installed as necessary. This will help to trap the sediment which would otherwise be redeposited into the main channel. This point will be positioned just before the diversion channel reconnects with the main channel.

#### 3.2.3.2 Damming and Over-Pumping

Measures for over pumping will generally be water pumped from the excavation area sump which can be released onto grassland at an appropriate distance from the channel to allow natural filtration to occur through the in-situ grasses/soils. This would be the appropriate measure for low flow conditions. Pump hoses shall be placed at a location that does not pose a tripping hazard to personnel and away from the plant operations.

It should be noted damming will be required for both scenarios. It is not possible to clarify at this time whether damming/over-pumping or a damming/channel diversion will be required. This will be dependent on the existing channel flow conditions at the time of mobilisation to the site. Over pumping will be carried out if there are minimal flow conditions in the channel.

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### 3.2.4 Demolition of Existing Structure

The existing bridge will be removed. Demolition works will be carried out in the dry working zone after placement of cofferdams on the upstream section of channel and installation of diversion channel or over pumping.

The existing structure will be removed using a hydraulic excavator, operated by an experienced and trained operative. Material will be removed from the area and can be used as backfill if appropriate. If the material is to be stored on-site prior to removal, it must be stored in an area away from the channel and works area not less than 30 metres.

The area around the existing bridge will be excavated to a suitable width and depth as per the requirements of the new bridge design. The invert level of the existing downstream pipe culvert shall be recorded.

### 3.2.5 Construction of New Pipe Structure

The new pipe culvert bridge will be constructed in accordance with the following OPW standard design drawings:

- 2480-DR-003-P2; and
- 2480-DR-006-P1

Please see Appendix I for copy of these drawings.

The channel bed shall be excavated to an appropriate level to allow formation of an adequate base for the foundation of the bridge. Typically, the invert level of the pipe may be laid in the region of 200 – 400mm below the channel bed to allow for future maintenance.

The ground conditions will be examined, and a decision will be made by the Site Foreman and Engineer as to the material needed for pipe bedding and concrete foundations. Should it be decided that the ground conditions are poor, imported clean broken stone (3”) and granular material (Cl.804) shall be placed and compacted along with lean-mix concrete to create the formation level. The formation level should be level and checked using a rotating laser level.

The foundation for the end-wall and wing-walls will be formed using peri shuttering. 2 layers of A393 mesh reinforcement shall be used in the foundation if ground conditions are poor. 40mm cover shall be maintained between the reinforcement and the external finish of the concrete.

The T.B.C. mm Diameter/1m length concrete pipes or 1 x 6m corripipes shall be lifted into place using the tracked excavator or a truck-mounted hiab. The pipe(s) will most likely be in the region of 900-1200mm diameter. The pipe(s) will be haunched with lean-mix concrete to a depth of 500mm on all sides.

The end walls shall be formed around the upstream and downstream pipes as per the design drawing. Peri formwork shall be used to form the end walls and wing-walls. The end-walls shall be formed to reach upwards and create a foundation for the parapet walls.

The formwork for wing-walls shall be erected as per manufacturer/supplier instructions. Wing-walls shall be constructed as per OPW standard design drawings. Ready-mix concrete, as per specification outlined on design drawings, shall be placed in the wing-walls and vibrated using a poker vibrator. Formwork can be removed following adequate curing of the concrete (as per Engineer/Foreman instruction).

Granular material (3" broken stone & Cl.804) shall be placed above the lean-mix concrete to the finished level of the bridge crossing.

The formwork for parapet walls shall be erected as per manufacturer/supplier instructions. Walls are to be 225mm thick and a minimum height of 1200mm above the bridge deck. Dowels shall be fixed for parapets. Ready-mix concrete (as per specification outlined on design drawings) shall be placed in the parapets and vibrated using a poker vibrator. Formwork can be removed following adequate curing of the concrete (as per Engineer/Foreman instruction).

Cofferdam will be removed, or diversion channel will be re-instated, depending on method used.

### 3.2.6 Timing of the Proposed Works

Typical duration of pipe culvert bridge works will be in the region of 2-3 weeks at each of the three proposed work locations. Works on site will typically be carried out during standard OPW hours re: 08:00 – 16:30. It is intended to carry out works between August and September 2022.

### 3.3 Completion of Works

Following the completion of the works, the surrounding area shall be reinstated to a condition similar to, or better than the pre-works situation by ensuring the following:

- Boundaries shall be re-established to the landowner's satisfaction.
- A photographic survey of the completed works shall be carried out by the Site Foreman.
- Records of any utility diversions and their locations shall be maintained and filed appropriately.
- A final inspection of the completed works shall be carried out by the Site Foreman and OPW Engineer to ensure satisfaction with the quality of the works and allow sign-off on OPW Project Risk Assessment / Safety Plan.
- Landowner to be asked to fill out Landowner Satisfaction Form while adhering to Covid-19 Protocol.



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## 4 RECEIVING ENVIRONMENT

### 4.1 Proposed Application Area

#### 4.1.1 Field Survey

During the site visit to each of the three work locations on 3<sup>rd</sup> June 2022, an overview of dominant habitats was undertaken within the proposed work areas and classified as per Fossitt (2000). Habitats are illustrated in Plates 4.1, 4.2 and 4.3.

The dominant aquatic habitat within the 3 no. proposed application areas is the Channel C3/26/5, which is classified as a **drainage ditch (FW4)**. Channel C3/26/5 has a base width of less than 3m at each work location and is therefore classified as a minor channel for arterial drainage purposes. The flow and water levels in the channel will vary depending on recent rainfall patterns and time of year.

The channel contains a vegetative layer of perennial ryegrass *Lolium perenne* and Common Water-starwort *Callitriche stagnalis* at each location.

The dominant habitats on either side of the drainage ditch within the proposed work areas are **improved agricultural/wet grassland (GA1/GS4)** with patches dense of **bramble and gorse scrub (WS1)**. Structure UB10 is particularly overgrown with scrub on either side of the channel (Plate 4.3).

There were no Annex I habitats recorded during the ecological walkover survey. Furthermore, there were no invasive plant species recorded onsite.

The otter survey yielded no evidence of breeding otter in terms of active holts, slides or couches within the 150m either side of the work area on both sides of the drain.

Channel C3/26/5 flows into the Baunmore Stream, which flows in westerly direction for approximately 2km to its confluence with the Clare River. There is an EPA river station approximately 1.2km downstream of the confluence of the Baunmore with the Clare at Fartamore Bridge. The latest Q-Value score of the Clare River at this station is reported as 4 (Good) (EPA, 2022).



**Plate 4.1:** Bridge structure UB2 on Channel C3/26/5 (FW4) from the upstream side of the bridge culvert showing improved agricultural / wet grassland on either side of the channel.



**Plate 4.2:** Bridge structure UB6 on Channel C3/26/5 (FW4) from the upstream side of the bridge culvert showing improved agricultural / wet grassland on either side of the channel.



**Plate 4.3:** Bridge structure UB10 on Channel C3/26/5 (FW4) from the upstream side of the bridge culvert which is particularly overgrown with vegetation.

## 4.2 Natura 2000 Sites

### 4.2.1 Scoping Study - Identification of Relevant Natura 2000 Sites

Section 3.2.3 of the Guidance for Planning Authorities (DoEHLG, 2010) states that the approach to screening can be different for different plans and projects and will depend on the scale and the likely effects of the project. A key variable that will determine whether or not a particular European Site is likely to be negatively affected is its physical distance from the project site and whether there are any pathways for effect linking the project to these sites.

Generally, UK guidance (Scott Wilson *et al.*, 2006) state that a distance of 15km is currently recommended as the likely Zone of Impact (Zoi) in the case of plans on European Sites and is sufficient to cover the geographic extent over which significant ecological effects are likely to occur. For projects, the guidance recognises that the likely Zoi could be much less than 15 km, and in some cases, less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivity of the ecological receptors, in addition to the potential for in combination effects.

Using the Source » Pathway » Receptor approach (OPR, 2021) and having regard for the location, the nature of the works, and the small size and scale of the proposed project, it is considered for the purpose of this screening exercise that the likely Zoi on designated sites is the zone immediately around the

construction site, in addition to any sites with a hydrological connection downstream of the works and/or with an ecological connection, where distance would be dependent on the qualifying interests of the site. A review of the National Parks and Wildlife Service database has identified following European Site with potential Source » Pathway » Receptor links to the proposed works (Figure 4.1):

- Lough Corrib SAC (Site Code: 000297)

The pathways for potential effects are identified in Table 4.1.

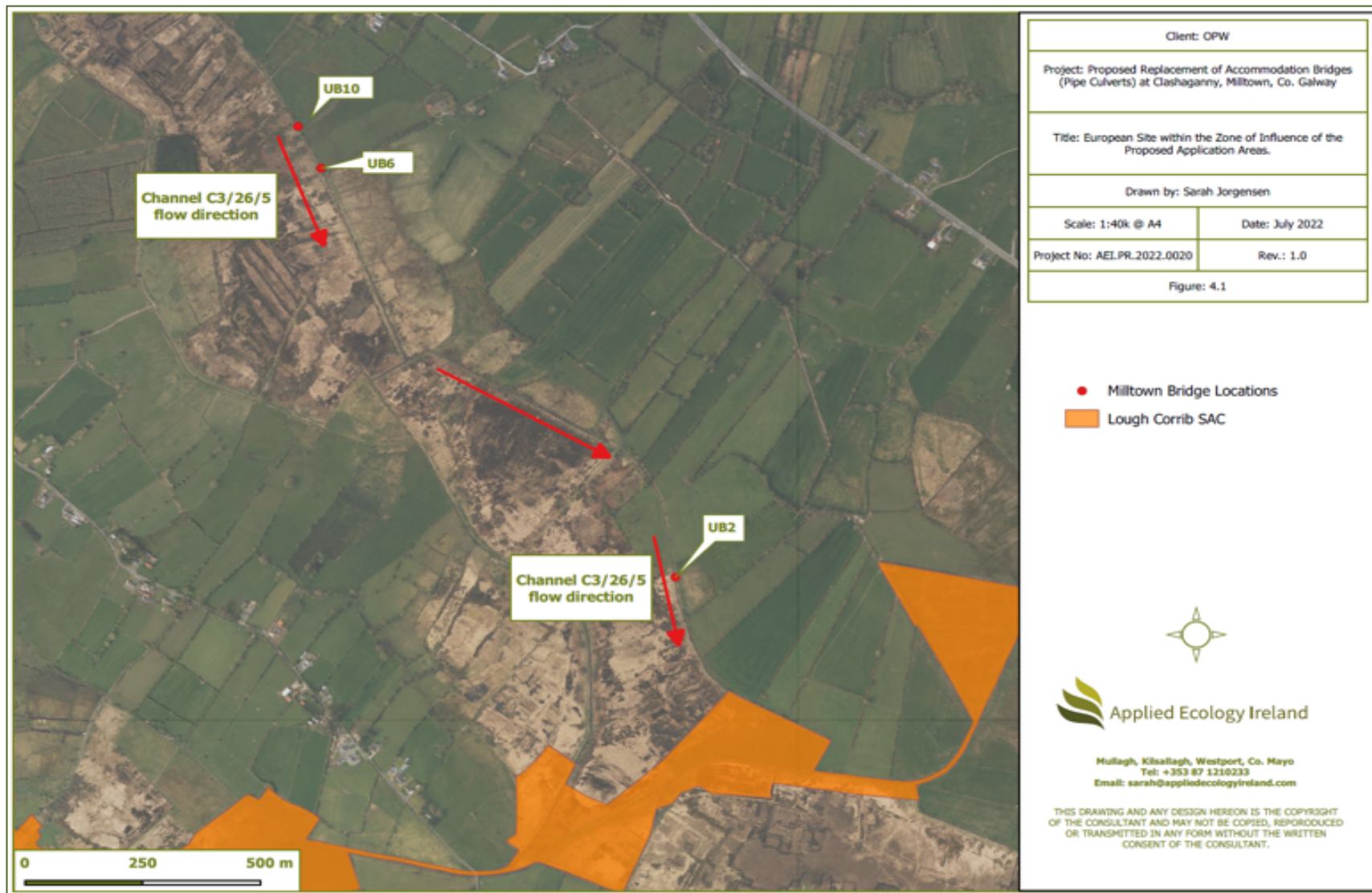


Figure 4.1: European site within the Zone of Influence of the three proposed application areas.

**Table 4.1:** Scoping Study: Identification of pathways for likely significant effects on European sites within the Zone of Influence of the application area.

EU Site	Primary reason(s) for selection of site	Approximate distance from proposed application area	Screening Required (Y/N)
<p><b>Lough Corrib SAC (Site Code: 000297)</b></p>	<p><b>Priority Annex I Habitats</b>                      [6210] Orchid-rich Calcareous Grassland*                      [7110] Raised Bog (Active)*                      [7210] Cladium Fens*                      [7220] Petrifying Springs*                      [8240] Limestone Pavement*                      [91D0] Bog Woodland*</p> <p><b>Annex I Habitats</b>                      [3110] Oligotrophic Waters containing very few minerals                      [3130] Oligotrophic to Mesotrophic Standing Waters                      [3140] Hard Water Lakes                      [3260] Floating River Vegetation                      [6410] Molinia Meadows                      [7120] Degraded Raised Bog                      [7150] Rhynchosporion Vegetation                      [7230] Alkaline Fens                      [91A0] Old Oak Woodlands</p> <p><b>Annex II Species</b>                      [1029] Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)                      [1092] White-clawed Crayfish (<i>Austropotamobius pallipes</i>)                      [1095] Sea Lamprey (<i>Petromyzon marinus</i>)                      [1096] Brook Lamprey (<i>Lampetra planeri</i>)                      [1106] Atlantic Salmon (<i>Salmo salar</i>)</p>	<p>The application sites are located at a hydrological distance of 300m (UB2), 1,644m (UB6) and 1,753m (UB10) northwest of the closest point of this SAC.</p>	<p><b>Scoped in.</b> Owing to the proximity and hydrological connection of the three application sites to the Lough Corrib SAC, pathways for potentially significant indirect effects as a result of the proposed works on the qualifying interests of the SAC have been identified.</p> <p>Therefore, this Natura 2000 site will undergo Screening for Appropriate Assessment.</p>

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EU Site	Primary reason(s) for selection of site	Approximate distance from proposed application area	Screening Required (Y/N)
	[1303] Lesser Horseshoe Bat ( <i>Rhinolophus hipposideros</i> ) [1355] Otter ( <i>Lutra lutra</i> ) [1393] Slender Green Feather-moss ( <i>Drepanocladus vernicosus</i> ) [1833] Slender Naiad ( <i>Najas flexilis</i> )		

## 4.2.2 Lough Corrib SAC (Site Code: 000297)

### 4.2.2.1 Summary Site Description

Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland, with an area of approximately 18,240 ha (the entire site is 20,556 ha). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south, and a larger, deeper basin, underlain by more acidic granite, schists, shales and sandstones to the north. The surrounding lands to the south and east are mostly pastoral farmland, while bog and heath predominate to the west and north. A number of rivers are included within the cSAC as they are important for Atlantic Salmon. These rivers include the Clare, Grange, Abbert, Sinking, Dalgan and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west. In addition to the rivers and lake basin, adjoining areas of conservation interest, including raised bog, woodland, grassland and limestone pavement, have been incorporated into the site.

Otter have been recorded regularly within this site. Otter is listed on Annex II of the E.U. Habitats Directive. Lough Corrib is considered one of the best sites in the country for Otter, due to the sheer size of the lake and associated rivers and streams, and also the generally high quality of the habitats. Atlantic Salmon (*Salmo salar*) use the lake and rivers as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the E.U. Habitats Directive. Lough Corrib is also a well-known fishing lake with a very good Trout (*Salmo trutta*) fishery. The lake has a population of Sea Lamprey (*Petromyzon marinus*), a scarce, though probably under-recorded species listed on Annex II of the E.U. Habitats Directive. Brook Lamprey (*Lampetra planeri*), also listed on Annex II, are also known from a number of areas within the site.

A population of Freshwater Pearl Mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs within the site. White-clawed Crayfish (*Austropotamobius pallipes*), also listed on Annex II, is well distributed throughout Lough Corrib and its in-flowing rivers over limestone. A summer roost of Lesser Horseshoe Bat, another Annex II species, occurs within the site - approximately 100 animals were recorded here in 1999.

The main threats to the quality of this site are from water polluting activities resulting from intensification of agricultural activities on the eastern side of the lake, uncontrolled discharge of sewage which is causing localised eutrophication of the lake, and housing and boating development, which is causing the loss of native lakeshore vegetation. The raised bog habitats are susceptible to further degradation and drying out due to drainage and peat cutting and, on occasions, burning. Peat cutting threatens Addergoole Bog and already a substantial area of it has been cut away. Fishing and shooting occur in and around the lake. Introduction of exotic crayfish species or the crayfish fungal plague (*Aphanomyces astaci*) could have a serious impact on the native crayfish population. The bat roost is susceptible to disturbance or development.

### 4.4.2.1 Qualifying Interests of Lough Corrib SAC

The features of qualifying interest of the SAC are outlined in Table 4.2.



**Table 4.2:** Qualifying interests for Lough Corrib SAC (\* denotes priority Annex I habitats)

	Natura Code	Item Description
Annex I Habitats	3110	Oligotrophic Waters containing very few minerals
	3130	Oligotrophic to Mesotrophic Standing Waters
	3140	Hard Water Lakes
	3260	Floating River Vegetation
	6210	Orchid-rich Calcareous Grassland*
	6410	Molinia Meadows
	7110	Raised Bog (Active)*
	7120	Degraded Raised Bog
	7150	Rhynchosporion Vegetation
	7210	Cladium Fens*
	7220	Petrifying Springs*
	7230	Alkaline Fens
	8240	Limestone Pavement*
	91A0	Old Oak Woodlands
	91D0	Bog Woodland*
Annex II Species	1029	Freshwater Pearl Mussel
	1092	White-clawed Crayfish
	1095	Sea Lamprey
	1096	Brook Lamprey
	1106	Atlantic Salmon
	1303	Lesser Horseshoe Bat
	1355	Otter
	1393	Slender Green Feather-moss

#### 4.4.2.2 Conservation Objectives

Site-specific conservation objectives have been recently revised and aim to define favourable conservation condition for the particular habitat or species at that site (NPWS, 2017)<sup>1</sup>. The complete conservation objectives document are available at: [https://www.npws.ie/sites/default/files/protectedsites/conservation\\_objectives/CO000297.pdf](https://www.npws.ie/sites/default/files/protectedsites/conservation_objectives/CO000297.pdf). The generic conservation objectives for the Lough Corrib SAC are:

- **Objective 1:** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected (as listed in Table 4.2).
- **Objective 2:** To maintain the extent, species richness and biodiversity of the entire site.
- **Objective 3:** To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

<sup>1</sup> NPWS (2017) Conservation Objectives: Lough Corrib SAC 000297. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

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## 5 STAGE 1 – SCREENING FOR APPROPRIATE ASSESSMENT

### 5.1 Introduction

The proposed replacement of three existing pipe culvert bridge structures along drainage channel C3/26/5 within the Corrib Arterial Drainage Scheme are not connected with, or necessary for the nature conservation management of the Lough Corrib SAC. Consequently, the screening will focus on evaluating the likely effects of the proposed works on the designated EU site identified.

### 5.2 Potential Risks to EU Sites

This section both identifies the potential risk which may arise as a result of the proposed works, and how these could potentially affect the qualifying interests within the identified EU site. The pathways and mechanisms of exposure to each of the identified risks are evaluated. The significance of potential effects is evaluated, with any potential in-combination effects also identified.

#### 5.2.1 Potential Risks as a Result of the Proposed Project

The following are risks to Lough Corrib SAC that have the potential to arise as a result of the proposed pipe culvert bridge replacement works:

- ***Deterioration in water quality*** – Given that the proposed work areas are located upstream of the SAC, the proposed works have the potential to result in indirect effects on the qualifying interests of the SAC. Freshwater aquatic habitats and species have the potential to be affected through the risk of contamination of surface water within Channel C3/26/5 which flows into Lough Corrib SAC by virtue of the following:
  - The release of suspended solids into Channel C3/26/5, and thus, the downstream Lough Corrib SAC.
  - The release of hydrocarbons into the surface water system by virtue of working with machinery in close proximity to Channel C3/26/5, and thus, the downstream Lough Corrib SAC.
- ***Disturbance/displacement*** – The proposed works have the potential to result in direct effects on otter by virtue of noise and vibration caused by machinery.

### 5.3 Evaluation of Likely Effects

This section evaluates the potential risks associated with the proposed works to Lough Corrib SAC as outlined in Section 5.2, and the significance of these potential risks on each feature of qualifying interest of the SAC. Please see Table 5-1 and 5-2. Note that features in **bold type** denote those upon which likely significant effects are foreseen.

**Table 5.1:** Evaluation of potential risks and their level of potential effect on features of qualifying interest of Lough Corrib SAC.

Qualifying Interests	Evaluation of Potential Risks	Potential Exposure to Risk and Mechanism of Effect, if known
Oligotrophic Waters containing very few minerals	Although a hydrological connection exists between the proposed work locations and the SAC via the drainage channel C3/26/5, these Annex I, surface water dependent habitats are located on and around Lough Corrib itself (NPWS 2017), which is at a hydrological distance of c. 55km from the work locations.  As such, owing to the dilution effect, there are no pathways for potential effects on these qualifying interests as a result of the proposed works.	The risk to these aquatic habitats is not considered significant given the considerable distance between the application sites and Lough Corrib.  Conclusion: <i>No likely significant effect</i>
Hard Water Lakes		
Oligotrophic to Mesotrophic Standing Waters		
<b>Floating River Vegetation</b>	Although a river corridor survey was not undertaken on the downstream Clare River as part of this evaluation and the exact locations of this qualifying interest has not been mapped within the SAC (NPWS, 2017), given the Clare’s Q-Value of 4 (Good Quality) (Station Code: RS30C010300; Station Name: Fartamore Bridge, EPA, 2022), there is a potential that this river may contains floating river vegetation.  As such, following the precautionary principle, pathways for potentially significant indirect effects on this qualifying interest of the SAC as a result of the proposed works exist by virtue of a possible deterioration in surface water quality at the proposed application areas.	The risk to this aquatic habitat is considered significant given the hydrological connectivity between the application site and the Clare River, which is designated within Lough Corrib SAC.  Conclusion: <i>Likely significant effect</i>

<p>Raised Bog (Active)*                  Degraded Raised Bog                  Rhynchosporion Vegetation                  Cladium Fens*                  Petrifying Springs*                  Alkaline Fens</p>	<p>Although a hydrological connection exists between the proposed work locations and the SAC via the drainage channel C3/26/5, these Annex I, water dependent habitats are located either upstream of the work locations or at considerable distances from the work locations (NPWS 2017).</p> <p>As such, there are no pathways for potential effects on these qualifying interests as a result of the proposed works.</p>	<p>The risk to these habitats is not considered significant given the considerable between the application sites and Lough Corrib.</p> <p>Conclusion:  <i>No likely significant effect</i></p>
<p>Orchid-rich Calcareous Grassland*                  Molinia Meadows                  Limestone Pavement*                  Old Oak Woodlands                  Bog Woodland*</p>	<p>These terrestrial habitats occur at considerable distances from the proposed work locations (NPWS 2017).</p> <p>As such, there are no pathways for significant direct or indirect effects on these habitats as a result of the proposed project.</p>	<p>The risk to these terrestrial habitats is not considered significant given the considerable distances between the known locations of these habitats and the application sites. Therefore, no pathway for likely significant effects exists.</p> <p>Conclusion:  <i>No likely significant effect</i></p>
<p>Freshwater Pearl Mussel                  (<i>Margaritifera margaritifera</i>)</p>	<p>The application site is not located within any <i>Margaritifera</i> Sensitive Area (NPWS, 2017). The closest <i>Margaritifera</i> Sensitive Area designated for catchments of SAC populations listed under S.I. 296 of 2009 is the Corrib-Owenriff catchment. This catchment is situated within the boundaries of the Lough Corrib SAC, however, is located &gt;50km to the west of the proposed application area.</p> <p>As such, no pathways for significant direct or indirect effects on this qualifying interest as a result of the proposed works exist.</p>	<p>The risk to these species is not considered significant given the considerable distance between known locations of this species and the application site. Therefore, no pathway for likely significant effects exists.</p> <p>Conclusion:  <i>No likely significant effect</i></p>

<p><b>White-clawed Crayfish</b>  <b>(<i>Austropotamobius pallipes</i>)</b></p> <p><b>Sea Lamprey</b>  <b>(<i>Petromyzon marinus</i>)</b></p> <p><b>Brook Lamprey</b>  <b>(<i>Lampetra planeri</i>)</b></p> <p><b>Atlantic Salmon</b>  <b>(<i>Salmo salar</i>)</b></p> <p><b>Otter</b>  <b>(<i>Lutra lutra</i>)</b></p>	<p>Given the Clare River’s Q-Value rating of 4 (Good Quality) (EPA, 2022), it is possible that these aquatic species of qualifying interest occur within the river, which is designated within the SAC.</p> <p>As such, following the precautionary principle, pathways for potentially significant indirect effects on these qualifying interests of the SAC as a result of the proposed works exist by virtue of possible deterioration of water quality at the application sites.</p> <p>These risks also have the potential to cause indirect effects on Otter through potential effects on prey species. Although there was no evidence of Otter at either of the three work locations, given the ubiquitous distribution of Otter, they are also at risk of indirect effects through disturbance and/or displacement as a result of the proposed works.</p>	<p>The risk to these aquatic species is considered significant given the hydrological connectivity between the application site and the Clare River.</p> <p><b>Conclusion:</b>  <b><i>Likely significant effect</i></b></p>
<p>Lesser Horseshoe Bat  <i>(Rhinolophus hipposideros)</i></p>	<p>Given the considerable distance between the known locations of the roosts of this species (NPWS, 2017) and the proposed work locations, there is no potential for direct or indirect effects on this terrestrial and volant species qualifying interest of the SAC as a result of the proposed works.</p>	<p>The risk to this species is not considered significant given the volant nature of this species. Therefore, no pathway for likely significant effects exists.</p> <p><b>Conclusion:</b>  <b><i>No likely significant effect</i></b></p>
<p>Slender Green Feather-moss  <i>(Drepanocladus vernicosus)</i></p>	<p>Given the considerable distance between the known locations of the roosts of this species (NPWS, 2017) and the proposed work locations, there is no potential for direct or indirect effects on this terrestrial and volant species qualifying interest of the SAC as a result of the proposed works.</p>	<p>The risk to this species is not considered significant given the considerable distance between known locations of this species and the application sites. Therefore, no pathway for likely significant effects exists.</p> <p><b>Conclusion:</b>  <b><i>No likely significant effect</i></b></p>

## 5.4 Potential In-combination Effects

It is a requirement of Article 6(3) of the Habitats Directive that an assessment is conducted to determine if significant effects of a plan or project are likely alone and also in combination with other plans or projects. The following section discusses potential in-combination effects that may arise.

A review of the Galway County Council's online planning database reveals that there are no other planned or consented developments in the vicinity of the proposed development which could act in-combination with the proposed project to result in any effects on the Lough Corrib SAC or on any of its qualifying features for which this site is of European importance.

## 5.5 Screening for Appropriate Assessment Matrix

The following matrix summarises the screening process that has been undertaken as part of this evaluation.

**Table 5.2:** Screening for AA Matrix

Screening Criterion	Screening Result
<i>Brief description of the project or plan</i>	The proposed project involves the replacement of 3 no. existing box culvert bridge structures with new pipe culvert bridges along OPW Channel C3/26/5 – UB2, UB6 and UB10 at Clashaganny, Milltown, Co. Galway, which is within the Corrib Arterial Drainage Scheme.
<i>Brief description of the Natura 2000 sites</i>	<ul style="list-style-type: none"> <li>Lough Corrib SAC (Site Code: 000297)</li> </ul> <p><i>Relevant features of the sites are described in Section 4.2.2.</i></p>
<i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.</i>	<p><b><u>Pathways exist for potential indirect effects on the following features of qualifying interest of the Lough Corrib SAC through potential for deterioration of water quality via a release of silt and/or hydrocarbons and displacement/disturbance via noise from construction activity:</u></b></p> <ul style="list-style-type: none"> <li>3260 Floating River Vegetation</li> <li>1092 White-clawed Crayfish (<i>Austropotamobius pallipes</i>)</li> <li>1095 Sea Lamprey (<i>Petromyzon marinus</i>)</li> <li>1096 Brook Lamprey (<i>Lampetra planeri</i>)</li> <li>1106 Atlantic Salmon (<i>Salmo salar</i>)</li> <li>1355 Otter (<i>Lutra lutra</i>)</li> </ul> <p>As such, where mitigation measures are not applied (See Section 6.1), the proposed works has the potential to result in significant indirect effects on these water dependent species and habitat associated with the Lough Corrib SAC.</p>

## 5.6 Screening Statement and Conclusions

The scoping assessment detailed in Section 4.2.1 examined potential effects on the EU designated sites within the Zone of Influence of the application area. The following designated site was scoped as part of this evaluation:

- Lough Corrib SAC (Site Code: 000297)

Following consideration of the nature and scale of the project, the hydrological/ecological connectivity between the proposed project location and the designated sites, the site specifics of the proposed application area locations and the particular qualifying interests/special conservation interests of the Natura 2000 sites, likely significant effects on the qualifying interests of **Lough Corrib SAC** were evaluated within this screening report.

Following the screening process, it has been determined that, **where mitigation measures are not applied, the potential for significant indirect and direct effects on the qualifying interests listed in Table 5.2 remain as a result of the following:**

- A reduction in water quality due to the proposed works;
- Noise arising from construction activity which could disturb otter activity in the local area.

The recommendation of the screening process is therefore to proceed to Stage 2 Appropriate Assessment with regard to the potential for significant indirect effects on Lough Corrib SAC.



## 6 STAGE 2 – NATURA IMPACT STATEMENT

This section of the Natura Impact Statement addresses the possibility of there being a significant effect or effects on the following European site which was identified during Stage 1 Screening (Section 5):

- Lough Corrib SAC (Site Code: 000297)

### 6.1 Assessment of the Effects of the Project or Plan on the Integrity of the Sites

*‘Describe the elements of the project or plan (alone or in combination with other projects or plans) that are likely to give rise to significant effects on the site (from screening assessment)’*

The proposed project has the potential to cause the following:

- A reduction in water quality due to the potential release of sediment and hydrocarbons into the surface water system, which could indirectly affect the qualifying interests listed in Table 5.2;
- Noise arising from construction activity which could disturb otter activity in the local area.

### 6.2 The Conservation Objectives of the EU Site

*‘Set out the conservation objectives of the site’.*

The conservation objectives of the European site concerned are to maintain the favourable conservation status of the key species and habitats for which the site has been designated. These are laid out in Table 6-1 below. Site specific conservation objectives for Lough Corrib SAC have been published online at: [https://www.npws.ie/sites/default/files/protectedsites/conservation\\_objectives/CO000297.pdf](https://www.npws.ie/sites/default/files/protectedsites/conservation_objectives/CO000297.pdf)

**Table 6-1:** Key species of qualifying interest of the EU site potentially affected by the proposed works.

Designated Site	Conservation Objectives
<b>Lough Corrib SAC</b>	<p>Objective: To maintain or restore the favourable conservation condition of the Annex I habitat(s) and the Annex II species for which the SAC has been selected:</p> <ul style="list-style-type: none"> <li>• 3260 Floating River Vegetation</li> <li>• 1092 White-clawed Crayfish</li> <li>• 1095 Sea Lamprey</li> <li>• 1096 Brook Lamprey</li> <li>• 1106 Atlantic Salmon</li> <li>• 1355 Otter</li> </ul> <p><i>NPWS (2017) Conservation Objectives: Lough Corrib SAC 000297. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. [accessed online on 07/07/2022]</i></p>

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## 6.3 Potential Effects on Key Species and Key Habitats

*'Describe how the project or plan will affect key species and key habitats. Acknowledge uncertainties and any gaps in information'.*

### 6.3.1 Silt and Hydrocarbons

In the scenario of a release of hydrocarbons from vehicles, machinery and stored fuels during the proposed works, there is potential for significant indirect effects on fish species listed in Table 6.1 and the fish prey species of otter, as well as the Annex I habitat, Floating River Vegetation.

Furthermore, the potential for increased silt content in runoff could degrade local surface water quality. Silt has the potential to clog salmonid spawning beds and juvenile salmonids are particularly sensitive to siltation of gill structures.

Similarly, plant and macro-invertebrate communities can be blanketed over, and this can lead to loss or degradation of valuable habitat, again, resulting in a secondary/indirect effect on the qualifying interests of the Lough Corrib SAC.

### 6.3.2 Disturbance of Otter

Increases in human activity causing disturbance, including noise, vibration and visual disturbance, can have a range of impacts depending upon the sensitivity of the ecological receptor, the nature and duration of the disturbance and its timing.

The response of individual species to increased levels of human disturbance will depend upon a number of factors including the sensitivity, reproductive status, previous exposure to human disturbance, behaviour during the event, species tolerance to disturbance, location in relation to the source, availability of alternative nearby habitat, and environmental factors (i.e. topography, vegetation and atmospheric conditions which can influence noise levels).

It is generally accepted that for noise and visual disturbance, certain species or groups of species, particularly in this case Otter, can be affected at a distance of up to 150m from its source for high level and discontinuous disturbance with these distances reducing for low level and/or continuous disturbance levels.

## 6.4 Potential Impacts on the Integrity of the Sites

*‘Describe how the integrity of the site (determined by structure and function and conservation objectives) is likely to be affected by the project and plan (e.g. loss of habitat, disturbance, disruption, chemical changes, hydrological changes and geological changes etc.). Acknowledge uncertainties and any gaps in information’.*

The integrity of Lough Corrib SAC could be indirectly affected by the proposed bridge replacement works through a reduction in water quality and disturbance to species leading to potentially significant effects on the qualifying interests of the SAC as listed in Table 6-1. Table 6.2 presents specific effects detailing their importance, magnitude and level of significance.

**Table 6-2:** Potential effects as a result of the proposed development on the water dependant habitats and species of qualifying interest of Lough Corrib SAC via surface water.

Activity	Features of interest affected	Character of potential effect	Potential consequential effect on features of interest	Importance of features of interest	Magnitude of potential effect	Term	Significance of potential effect
Silt-laden runoff as a result of the proposed works.	Floating River Vegetation; White-clawed Crayfish; Sea Lamprey; Brook Lamprey; Atlantic Salmon; Otter.	The increased silt content in runoff has potential to degrade local surface water quality.	Silt has the potential to clog salmonid spawning beds and juvenile salmonids are particularly sensitive to siltation of gill structures.  Similarly, plant and macro-invertebrate communities can be blanketed over, and this can lead to loss or degradation of valuable habitat.  A significant effect on these species may have a significant secondary effect on otter through reduction in prey.	High	Medium	Medium-term	Moderate

Activity	Features of interest affected	Character of potential effect	Potential consequential effect on features of interest	Importance of features of interest	Magnitude of potential effect	Term	Significance of potential effect
Storage of hydrocarbons; leakages from machinery; spillages during refuelling	Floating River Vegetation; White-clawed Crayfish; Sea Lamprey; Brook Lamprey; Atlantic Salmon; Otter.	Runoff/recharge may contain hydrocarbons.	A reduction in water quality due to the accidental release of hydrocarbons has the potential to result in effects on salmonids and plant species within the watercourse.  In addition, otters may be secondarily affected by a reduction in water quality through a reduction in potential prey should fish be affected as a result of hydrocarbon runoff to the surface.	High	Medium	Temporary	Moderate
Noise and vibrations from the proposed construction activities.	Otter	Disturbance and/or displacement of breeding or foraging otters.	Noise and vibrations from the proposed construction activities have the potential to result in disturbance and displacement of otters, if any otter holts are created in the near vicinity before project commencement.	High	Medium	Temporary	Moderate

## 6.5 Mitigation Measures to be Introduced

*‘Describe what mitigation measures are to be introduced to avoid or reduce the adverse effects on the integrity of the site. Acknowledge uncertainties and any gaps in information’*

- *List measures to be introduced*
- *Explain how the measures will avoid the adverse effects on the integrity of the site*
- *Explain how the measures will reduce the adverse effects on the integrity of the site*
- *Provide evidence of how they will be implemented and by whom.*

The following mitigation measures presented in Table 6-3 will be implemented in order to reduce or avoid adverse effects on Lough Corrib SAC.

- The OPW Environmental Guidance (Brew and Gilligan, 2019) will be strictly adhered to during these works.

**Table 6-3:** Mitigation measures to reduce or avoid adverse effects on Lough Corrib SAC.

Activity	Features of interest	Character of potential effect	Mitigation measures	Residual effect
Silt-laden runoff as a result of Culvert demolition and replacement works.	Floating River Vegetation; White-clawed Crayfish; Sea Lamprey; Brook Lamprey; Atlantic Salmon; Otter.	The increased silt content in runoff has potential to degrade local surface water quality.	<ul style="list-style-type: none"> <li>• In accordance with IFI guidance for instream works, instream works are to be undertaken between June and September.</li> <li>• If a channel diversion is to take place, this will be carried out on the right bank as one looks downstream. A diversion channel will be excavated from a point upstream of the existing pipe bridge and will tie back into the channel at a point downstream of the pipe bridge. A temporary pipe culvert will be installed into the diversion channel and will be stoned over.</li> <li>• Damming will be carried out immediately downstream of the channel diversion location and at a point just upstream of where the diversion channel reconnects with the working channel to ensure a dry working zone.</li> <li>• Dewatering of works area/excavations will be carried out in accordance with EP 15 Construction Silt Management.</li> <li>• Silt management will be carried out in such a way as to eliminate/minimise the silt load downstream of the works with the use of silt curtains, straw bales, HDPE plastic pipes with baffle boards at inlet to bypass channel etc.</li> <li>• Measures for over pumping will generally be water pumped from the excavation area sump and will be released onto grassland at a distance of not less than 50m from the channel to allow natural filtration to occur through the in-situ grasses/soils.</li> <li>• This would be the appropriate measure for low flow conditions.</li> </ul>	Imperceptible

Activity	Features of qualifying interest	Character of potential impact	Mitigation measures	Residual impact
			<ul style="list-style-type: none"> <li>• Stockpiles will be placed at least 20m back from the channel bank to minimise sediment run-off into the watercourse.</li> <li>• In dry conditions, when the dust levels from the stockpiles become significant, the stockpiles will be sprayed with water to reduce dust levels.</li> <li>• Plant and machinery will not track through or operate from within the watercourse. Operators shall avoid swinging full or dirty excavator buckets over the watercourse where possible.</li> <li>• Excavator tracks shall be cleaned regularly to limit the unwanted movement of loose soils around the worksite.</li> <li>• Cleaning of plant and machinery shall take place away from waterways and the run-off from such activity shall be controlled.</li> </ul>	
Storage of hydrocarbons; leakages from machinery; spillages during refuelling.	Floating River Vegetation; White-clawed Crayfish; Sea Lamprey; Brook Lamprey; Atlantic Salmon; Otter.	Runoff/recharge may contain hydrocarbons.	<ul style="list-style-type: none"> <li>• No fuel will be stored near waterways.</li> <li>• All refuelling of plant will take place at an allocated location on the site at a distance greater than 50m from the watercourse (Refer to OWP EP17 Water Pollution 4a).</li> <li>• Fuel nappy to have 110 % capacity. This will allow for sufficient reaction time to a potential fuel spill before any fuel enters the watercourse.</li> <li>• A spill kit will always be present on sites where there is interaction with an open watercourse.</li> <li>• Hydraulic fluid leaks will be addressed, using the spill kit that will be present on the site as soon as they are identified.</li> <li>• The plant in question will immediately be moved to a safe area where leakage of fluid into the watercourse is not possible.</li> </ul>	Imperceptible

Activity	Features of qualifying interest	Character of potential impact	Mitigation measures	Residual impact
Noise and vibrations from the proposed construction activities.	Otter	Disturbance and/or displacement of breeding or foraging otter.	<ul style="list-style-type: none"><li>• All works to comply with the OPW Environmental Guidance Procedure EP20 Otter.</li><li>• Working hours are 8:00am to 18:00pm</li></ul>	Imperceptible



## 6.6 Efficacy of the proposed Mitigation Measures

*Provide evidence of the degree of confidence in the likely success of the mitigation measures*

Mitigation measures were devised in consideration of the following guidelines:

- Water Framework Directive (2000/60/EC)
- UK Pollution Prevention Guidelines (PPG):
  - PPG1: Good Environmental Practices (2013)
  - PPG2: Above ground oil storage tanks (2011)
  - PPG3: Use and design of oil separators in surface water drainage systems (2006)
  - PPG4: The disposal of sewage where no foul sewer is available (2006)
  - PPG5: Works and maintenance in or near water (2007)
  - PPG6: Working at construction and demolition sites (2012)
  - PPG7: The safe operation of refuelling facilities (2011)
  - PPG8: Safe storage and disposal of used oil (2004)
  - PPG21: Incident response planning (2009)
  - PPG22: Dealing with Spills (2011)
  - PPG26: Drums and Intermediate Bulk Containers (2011)
- CIRIA (2001). Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (C532).
- CIRIA (2006). Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors. CIRIA C532.
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries During Construction Works In and Adjacent to Waters.
- National Roads Authority (2005). Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes.
- National Roads Authority (2008). Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes.
- OPW (2019) Environmental Guidance: Drainage Maintenance and Construction.

Accordingly, given the provenance of the mitigation measures as set out above, those mitigation measures (when correctly implemented) will be successful in ensuring that the European site is preserved at a favourable conservation status by ensuring the lasting preservation of the constitutive characteristics of this site.

Furthermore, OPW appointed ground staff and technical staff, experienced in carrying out works in sensitive fresh water environments will supervise all works for the duration of the project to ensure the mitigation measures are implemented correctly at all times.

In circumstances where the mitigation measures have been developed in the light of the best scientific knowledge, no reasonable scientific doubt remains to the *absence* of any adverse effects caused by the proposed development on the integrity of the European Site under consideration in circumstances where those mitigation measures are implemented.

## 6.7 Addressing Mitigation Failure

*Explain how any mitigation failure will be addressed*

Should discharge water from extraction area fail to be of a high quality (this is considered unlikely), then a filtration treatment system (such as a ‘siltbuster’ or similar equivalent treatment) will be used to filter and treat all surface discharge water collected in a dirty water drainage system.

## 6.8 Concluding Statement

In summary, it can be concluded that in light of the conservation objectives and rationale for designation of Lough Corrib SAC, the potential for significant effects on the integrity of the SAC exists as a result of aspects of the proposed replacement of 3 no. existing box culvert bridge structures with new pipe culvert bridges along OPW Channel C3/26/5 – UB2, UB6 and UB10 at Clashaganny, Milltown, Co. Galway.

These potentially significant effects have been evaluated, and with the implementation of the proposed mitigation measures, it is concluded that the proposed project will not result in any effects that will adversely affect Lough Corrib SAC, having regard to the site’s conservation objectives, in circumstances where “no reasonable scientific doubt” remains as to the absence of such adverse effects.

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## 8 APPENDICES

## APPENDIX I – OPW PLANNING DRAWINGS



