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# EIRSPAN BRIDGE MANAGEMENT SYSTEM

## Task Order No. 265

### Reactive Maintenance Works at Ballycomey Culvert

### Natura Impact Statement

April 2021



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# 1. INTRODUCTION

## 1.1 Background

Roughan & O'Donovan (ROD) was appointed by Transport Infrastructure Ireland (TII) to provide services relating to Appropriate Assessment of reactive maintenance works at Ballycomey Culvert, Co. Kilkenny [KK-N78-005.50]. The bridge carries the N78 over the Ballycomey Stream, 2 km south of Castlecomer, Co. Kilkenny and is located 160m upstream of the River Barrow and River Nore SAC.

The Eirspan Bridge Management System covers all aspects of bridge management including routine maintenance. Over the past number of years routine maintenance contracts have been undertaken by private contractors under Bridge Term Maintenance contracts.

This contract was intended to carry out annual routine maintenance work between the 1<sup>st</sup> March and the 30<sup>th</sup> September of each year from 2018 to 2021, with a defects period extending for a further year. The contract requires an element of reactive maintenance to address bridge strikes, defects discovered on removal of vegetation and other non-planned works during the contract term.

Bridge inspections are carried out according to the EIRSPAN Bridge Management System Routine Maintenance Manual (TII, 2017). The undertaking of bridge inspections generates data that is entered into an EIRSPAN database and works orders are produced for each bridge, which details the works to be undertaken for each component of that bridge. The works orders detail "routine maintenance works" as set out in the manual.

Routine maintenance works are defined in the guidance document as "*works that are carried out at regular intervals*", the objective of which is to "*undertake cleaning and minor maintenance works to avoid or delay the development of deterioration*" (TII, 2017). Appendix J of the manual details the work specifications for routine maintenance works.

Non-routine or reactive works, which usually occur as a result of isolated incidents such as collisions or erosion damage due to floods (TII, 2017), are not included in the Works Orders under the Leinster Bridges Term Maintenance Contract No. 3. Such works will be subject to Screening for Appropriate Assessment as they arise.

As the maintenance contract is running over a 4-year period, the Contractor is required to employ a suitably qualified ecologist to provide advice on the ecological features and constraints at specific bridge locations as the project progresses.

The Contractor is expected by the Contract to adhere to the level of best practice as espoused in these and other accepted/published best practice for on-site works; these requirements are also specifically included in the Contract. As part of the Contract, a Resident Engineer (RE) will oversee works on behalf of Transport Infrastructure Ireland (TII).

In accordance with Article 6(3) of Council Directive 92/43/EEC of 21 August 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive"), as transposed into Irish law by Part 5 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) ("the Habitats Regulations") and Part XAB of the Planning and Development Act, 2000 (as amended) ("the Planning and Development Act"), this Natura Impact Statement (NIS) has been prepared by ROD on behalf of TII, as the competent authority, to assess whether or not the reactive

maintenance works at Ballycomey Culvert, either individually or in combination with other plans or projects, was likely to have an adverse effect on one or more sites of Community importance ("European sites") for nature conservation.

The AA Screening exercise for the works, which was carried out by TII, concluded, in view of best scientific knowledge and the Conservation Objectives of the site concerned, that, in the absence of appropriate mitigation, the proposed works were likely to have adverse effects on one or more European site. TII's determination was based on the works involving in-stream concrete works upstream of a European site. On the basis of this conclusion, TII, in its capacity as the Competent Authority at the screening stage, determined that AA was required in order to assess the implications of the proposed works.

A consultation meeting was held with Inland Fisheries Ireland on the 21/01/2019 to discuss the installation of concrete linings to corrugated steel culverts. This structure is not a corrugated steel culvert, although the potential for ecological impacts and adverse effects, is the same. IFI requested that baffles be installed where gradients were greater than 3%.

A Section 50 application has not been submitted for the proposed works. Flows through the structure are limited by the volume of the concrete pipe, and therefore the proposed works will have no hydraulic impact on the Ballycomey Stream or its catchment.

This document comprises the NIS in respect of the reactive maintenance work at Ballycomey Bridge and has been prepared by ROD on behalf of TII. It contains an examination, analysis and evaluation of the potential impacts from the works, both individually and in combination with other plans and projects, in view of best scientific knowledge and the Conservation Objectives of the European sites concerned. It also prescribes appropriate mitigation to ensure that the works will not adversely affect the integrity of those sites. Finally, it provides complete, precise and definitive findings which are capable of removing all reasonable scientific doubt as to the absence of adverse effects on the integrity of the European sites concerned.

## 1.2 Legislative Context

The Habitats Directive and Directive 2009/147/EC of the European Parliament and of the Council of 30th November 2009 on the conservation of wild birds ("the Birds Directive") list habitats and species which are, in a European context, important for conservation and in need of protection. This protection is afforded in part through the designation of sites which support significant examples of habitats or populations of species ("European sites"). Sites designated for birds are termed "Special Protection Areas" (SPAs) and sites designated for natural habitat types or other species are termed "Special Areas of Conservation" (SACs). The complete network of European sites is referred to as "Natura 2000".

In order to ensure the protection of European sites in the context of land use planning and development, Article 6(3) of the Habitats Directive provides for the assessment of the implications of plans and projects for European sites, as follows:

*"Any plan or project not directly connected with or necessary to the management of the site [or sites] but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site [...], the competent national authorities shall agree to*

*the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned [...].”*

The requirements arising out of Article 6(3) are transposed into Irish law by Part 5 of the Habitats Regulations, and the assessment is referred to as “Appropriate Assessment” (AA).

The determination of whether or not a plan or project meets the two thresholds for requiring AA is referred to as “Stage 1” or “AA Screening”. The first threshold is reached if the plan or project is not directly connected with or necessary to the management of one or more European sites. In its ruling in the Waddenzee case<sup>1</sup>, the Court of Justice of the European Union (CJEU) interpreted the second threshold as being reached where *“it cannot be excluded, on the basis of objective information, that [the plan or project] will have a significant effect on that site”*. Thus, in applying the Precautionary Principle, the CJEU interpreted the word “likely” to mean that, as long as it cannot be demonstrated that an effect will not occur, that effect is considered “likely”. A likely effect is considered to be “significant” only if it interrupts or causes a delay in achieving the Conservation Objectives of the site concerned.<sup>2</sup>

Prior to approval of a plan or project which is the subject of AA (also referred to as “Stage 2”), it is necessary to “ascertain” that the plan or project will not “adversely affect the integrity of the site”. In its guidance document (EC, 2001), the European Commission stated that *“the integrity of a site involves its ecological functions”* and that *“the decision as to whether it is adversely affected should focus on and be limited to the site’s conservation objectives”*. Regarding the word “ascertain”, the CJEU, also in its ruling in the Waddenzee case, interpreted this as meaning *“where no reasonable scientific doubt remains as to the absence of such effects”*. Therefore, the legal test at Stage 2 is satisfied (and the plan or project may be authorised) when it can be demonstrated beyond reasonable scientific doubt that the plan or project will not interrupt or cause delays in the achievement of the Conservation Objectives of the site or sites concerned. AA is informed by a “Natura Impact Report” (NIR) in the case of plans or a “Natura Impact Statement” (NIS) in the case of projects.

The CJEU has made a relevant judgment on what information should be contained within documents supporting AA3 (in the NIR or NIS):

*“[The AA] cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned.”*

The Irish High Court has also provided clarity on how competent authorities should undertake valid and lawful AA4, directing that the AA:

*“Must identify, in the light of the best scientific knowledge in the field, all aspects of the development project which can, by itself or in combination with other plans or projects, affect the European site in the light of its conservation objectives. This clearly requires both examination and analysis.”*

*“Must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps. The requirement for precise and definitive findings and conclusions appears to require examination, analysis, evaluation and decisions. Further, the reference to findings and conclusions in a scientific context requires both findings following analysis and conclusions following an evaluation of each in the light of the best scientific knowledge in the field.”*

*“May only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where, upon the basis of complete, precise and definitive findings and conclusions made, the consenting authority decides that no reasonable scientific doubt remains as to the absence of the identified potential effects.”*

In accordance with Article 6(3) of the Habitats Directive, the responsibility to screen for and carry out AA lies solely with the “competent national authorities”, i.e. those with responsibility for granting or refusing consent for plans and projects. In that respect, an AA Screening Report, NIR or NIS (if not prepared by the competent authority) does not in itself constitute a valid AA Screening or AA; it merely provides the competent authority with the information that it needs in order to screen for and carry out its AA. In Ireland, the competent authority for a given plan or project is the relevant planning authority, e.g. Transport Infrastructure Ireland.

### 1.3 Methodology

On the basis of the objective information provided in the AA Screening spreadsheet and in view of the Conservation Objectives of the relevant European sites, TII, as the competent authority, determined that the proposed works, either individually or in combination with other plans and projects, was likely to have a significant effect on one or more European site.

In accordance with the requirements for AA, this NIS assesses the likely effects of the proposed works on the integrity of the European sites “screened in” at Stage 1. This assessment is undertaken in six steps, as follows:

1. Step 1 involves gathering all of the information and data that will be necessary for a full and proper assessment. These include, but are not limited to, the details of all phases of the plan or project, environmental data pertaining to the area in which the plan or project is located, e.g. rare or protected habitats and species or invasive species present or likely to be present, and the details of the European sites within the likely zone of impact.
2. Step 2 involves examination of the information gathered in the first step and detailed scientific analysis of the effects of the plan or project on the ecological structure and function of the receiving environment, focussing on European sites.
3. Step 3 evaluates the effects analysed in Step 2 against the Conservation Objectives of the relevant European site or sites, thereby determining whether or not they constitute adverse effects on site integrity.
4. Having established that the plan or project will adversely affect the integrity of one or more European sites, Step 4 involves the development of appropriate mitigation, including, where appropriate, monitoring and enforcement measures, to eliminate or minimise those effects such that they no longer constitute adverse effects on the integrity of the site(s) concerned, as well as consideration of the significance of any residual (post-mitigation) effects.
5. Step 5 involved the assessment of the significance of any residual effects arising from the proposed works in combination with other plans or projects.
6. Step 6 involves the final determination of whether or not the plan or project will adversely affect the integrity of one or more European sites. Notwithstanding the final recommendation made in the NIS, the responsibility for completing this step lies solely with the competent authority.

The following guidance documents informed the assessment methodology:

- DEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.

- NPWS (2010) *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular Letter NPWS 1/10 & PSSP 2/10. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- EC (2001) *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*. Environment Directorate-General of the European Commission.
- EC (2018) *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. European Commission, Brussels

## **2. BALLYCOMEY CULVERT [KK-N78-005.50]**

Ballycomey Culvert is a single span masonry arch bridge that has been extended with a concrete pipe culvert on the western side with a diameter of 1.3 m and a length of 12.5 m. The masonry arch barrel measures 2.4 m in width and 8.4 m in length. The bridge carries the N78 over the Ballycomey Stream, 2 km south of Castlecomer, Co. Kilkenny.

The outlet of the pipe is higher than the riverbed level under the masonry arch bridge, and high velocity flows have led to significant scour of the riverbed and at the base of the north abutment. The Ballycomey Stream flows into the River Dinin 160 m downstream of the structure. The River Dinin flows into the River Nore a further 14.5 km downstream. The Ballycomey Culvert is 160 m upstream of the River Barrow and River Nore SAC. The boundary of the SAC is at the confluence of the Ballycomey Stream and the River Dinin. The lands on either side of the culvert are amenity grassland, built land and improved agricultural grassland.

An inspection was carried out by engineers from Roughan & O'Donovan on the 14/01/2020. A site visit was carried out on the 8<sup>th</sup> April 2021 by two Ecologists from Roughan & O'Donovan, Owen O'Keefe MCIEEM and Calvin Townsend-Smyth QualCIEEM. Owen is an ecologist with over 5 years' experience and holds a BSc (Hons) in Ecology from University College Cork. Calvin is an ecologist with 2 years' experience and holds a BSc (Hons) in Wildlife Biology from the Institute of Technology, Tralee.

Dense vegetation covering the channel prevented access upstream of the structure and downstream of the structure beyond 10 m. The depth of the stream was <10 cm at the time of the survey. No evidence of Otter, Freshwater Pearl Mussel or invasive species was recorded.

Plate 1 below shows the location of the bridge. Plate 2 shows an image of the masonry arch barrel and concrete pipe culvert. Plate 3 shows the eastern side of the structure and Plate 4 shows the bridge deck and the western blockwork parapet.





**Plate 1. Location of the Ballycomey Culvert.**



**Plate 2. Masonry arch barrel and concrete pipe culvert.**



**Plate 3. Eastern side of structure.**



**Plate 4. Bridge deck and western blockwork parapet.**

### 3. PROPOSED WORKS

The following works are proposed at this structure:

- Removal of vegetation from within 1 m from structure on western embankments. The vegetation consists of ivy growing on the structure and small ash trees (50 m<sup>2</sup>)
- Removal of vegetation from wingwalls and spandrel walls on eastern side. (15 m<sup>2</sup>)
- Repointing of wingwalls and spandrel walls (15 m<sup>2</sup>)
- The arch barrel is in good condition however previous repair work is poor quality and this should be made good. Repointing is required, as necessary.
- Installation of concrete base. A scour hole has developed below the concrete pipe outlet as a result of high velocity flows. The hole is 4 m x 2.2 m x 800 mm and extends to the north abutment which is undermined. A concrete base will be constructed under the masonry arch section of the structure (20.58 m<sup>2</sup>). The base will ramp up to the invert level of the concrete pipe. Stone and debris will be removed, and a level surface will be created. The concrete will be poured directly onto the riverbed and will be between 250 mm and 450 mm thick. The new concrete bed will have stones of a similar size to those already on the riverbed set in to reduce flow velocity.
- Repointing of abutments (10 m<sup>2</sup>)
- Repair of scour damage at the north abutment (5 m x 1 m x 1.5 m deep (7 m<sup>3</sup>)).
- There is currently no edge protection on the eastern side of the structure. A masonry parapet will be constructed on top of the spandrel wall following vegetation clearance. The footway will be extended to the base of the new parapet. The new parapet will tie-in to a new safety barrier.
- Rubbing strip to be installed on western verge to replace vegetated verge.
- The western block parapet will be dismantled and reconstructed with masonry to meet the adjoining boundary walls.
- Scour protection around the inlet. This area was not accessible during the principal inspection; however it is likely that due to the angle and velocity of the stream some scouring around the pipe has occurred.

## 4. EUROPEAN SITES

Section 3.2.3 of DEHLG (2010) outlines the procedure for selecting the European sites to be considered in AA. It states that European sites potentially affected should be identified and listed, bearing in mind the potential for direct, indirect and cumulative effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project.

During the preparation of this NIS, a thorough desk study was undertaken of all available baseline data relating to biodiversity within the likely zone of impact of the proposed development. This included a review of the following resources:

- The statutory consultee, the National Parks & Wildlife Service (NPWS), provided information on designations of sites, habitats and species (including birds) of conservation interest. This included reports pursuant to Article 17 of the Habitats Directive<sup>1</sup> (NPWS, 2019a,b) and Article 12 of the Birds Directive<sup>2</sup> (Eionet, 2018), as well as Site Synopses, Natura 2000 Standard Data Forms and Conservation Objectives (including supporting documents) for the relevant European sites.
- The National Biodiversity Data Centre (NBDC) *Biodiversity Maps* (NBDC, 2018) provided records of protected, rare and invasive species.
- The Environmental Protection Agency (EPA) online mapping system provided data in relation to hydrological connections and water quality status of water bodies in the vicinity of the proposed development.
- NPWS (2020) GIS Shapefiles for Freshwater Pearl Mussel records in Leinster. National Parks & Wildlife Service & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.

As with all desk studies, the data considered were only as good as the data supplied by the recorders and recording schemes. The recording schemes provide disclaimers in relation to the quality and quantity of the data that they provide, and these were considered when examining outputs of the desk study.

Having regard to the size, nature and location of the works, the sensitivities of the ecological receptors and the potential for in-combination effects, the likely zone of impact was defined as the Project boundary plus a 500 m buffer, plus 2 km downstream of the works. The likely zone of impact was determined by the potential for impacts arising from the proposed works including habitat fragmentation, noise and visual disturbance as well as water quality impacts.

There is only one European site within the likely zone of impact, River Barrow and River Nore SAC [002162]. The River Dinin forms part of the River Barrow and River Nore SAC at the location of its confluence with the Ballycomey Stream, 160 m downstream of the works. This site is summarised below.

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<sup>1</sup> Under Article 17 of the Habitats Directive, Member States of the European Union are required to report to the Commission every six years on the status of Annex I habitats and Annex II species and on the implementation of the measures taken under the Directive.

<sup>2</sup> Every three years, Member States of the European Union are required by Article 12 of the Birds Directive to report on implementation of the Directive. The most recent reporting available is for the period 2008-2012.

## River Barrow and River Nore SAC

### Site Overview

This River Barrow and River Nore SAC consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore, it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows [REDACTED]

### Qualifying Interests (\* = "priority habitat" in danger of disappearing from the EU)

[1016] Desmoulin's Whorl Snail (*Vertigo moulinsiana*)  
[REDACTED]

[1092] White-clawed Crayfish (*Austropotamobius pallipes*)

[1095] Sea Lamprey (*Petromyzon marinus*)

[1096] Brook Lamprey (*Lampetra planeri*)

[1099] River Lamprey (*Lampetra fluviatilis*)

[1103] Twaite Shad (*Alosa fallax*)

[1106] Atlantic Salmon (*Salmo salar*)

[1130] Estuaries

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

[1170] Reefs

[1310] *Salicornia* and other annuals colonising mud and sand

[1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

[1355] European Otter (*Lutra lutra*)

[1410] Mediterranean salt meadows (*Juncetalia Maritima*)

[1421] Killarney Fern (*Trichomanes speciosum*)  
[REDACTED]

[3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation

[4030] European dry heaths

[6430] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

[7220] \*Petrifying springs with tufa formation (*Cratoneurion*)

[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*)

### **Pressures on/Threats to the Site**

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, over-grazing in the woodland areas, and invasion by non-native species. Good quality water is necessary to maintain the populations of Annex II species and is dependent on controlling fertilisation of the grasslands, particularly along the River Nore. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as Lamprey and Shad. Land reclamation also poses a threat to the salt meadows and the protected species therein.

### **Evaluation against Conservation Objectives**

The identification of adverse effects potentially arising from the reactive maintenance works on the integrity of the European sites identified above focusses on and is limited to the Conservation Objectives of those sites.

Table 5.2 below details the identification of potential adverse effects on the sites concerned. In considering the potential for adverse effects on the Conservation Objectives for each Qualifying Interest in each European site, regard was had to the Attributes and Targets which define each site-specific Conservation Objective.

## 5. ASSESMENT OF ADVERSE EFFECTS

The Qualifying Interests of the River Barrow and River Nore SAC are listed in Section 4. The work elements along with the potential for adverse effects is discussed in Table 5.1 below.

**Table 5.1 Works elements and potential to lead to adverse effects.**

| <b>Work element</b>  | <b>Is there potential for adverse effects?</b>  |
|--|---|
| Removal of vegetation on western embankments (50 m <sup>2</sup> )                                | No. This work will be undertaken using mechanical means. Ivy will be removed from the structure by hand. Small trees will be cut to the base. The stumps will be left in the ground.  |
| Removal of vegetation from wingwalls and spandrel walls (15 m <sup>2</sup> )                     | No. This work will be undertaken using mechanical means and from the bridge deck and riverbanks only.   |
| Repointing of wingwalls and spandrel walls (15 m <sup>2</sup> )                                  | Yes. The use of wet mortar directly above the stream bed has the potential to lead to the introduction of wet mortar into the stream. Wet mortar can have toxic effects on aquatic life. Therefore, mitigation is required.                       |
| Repointing of arch barrel.   | Yes. Repointing of the arch barrel will require the application of wet mortar directly above the stream bed. Wet mortar can have toxic effects on aquatic life. Therefore, mitigation is required.  |
| Installation of concrete base.   | Yes. Installation of the concrete bed will require the stream to be dewatered. Dewatering of the stream could lead to the introduction of wet concrete into the stream. Wet concrete is toxic to aquatic life. Therefore, mitigation is required. |
| Repointing of abutments (10 m <sup>2</sup> )   | Yes. The use of wet mortar directly above the stream bed has the potential to lead to the introduction of wet mortar into the stream. Wet mortar can have toxic effects on aquatic life. Therefore, mitigation is required.                       |
| Repair of scour damage at the north abutment (5 m x 1 m x 1.5 m deep (7 m <sup>3</sup> )).       | Yes. The use of concrete above the stream bed has the potential to lead to the introduction of wet mortar into the stream. Wet mortar can have toxic effects on aquatic life. Therefore, mitigation is required.                                  |
| Construction of masonry parapet on the eastern side and extension of footway to base of parapet. | Yes. The reconstruction of the eastern parapet will involve the use of wet concrete and mortar over the stream bed. Wet mortar is toxic to aquatic life. Therefore, mitigation is required.   |
| Rubbing strip to be installed on western verge to replace vegetated verge.                       | No. The construction of a new footpath will be carried out on the bridge deck where there are no pathways for pollutants to enter the water. Therefore, mitigation is not required.   |
| Dismantling and reconstruction of the western parapet.   | Yes. The reconstruction of the parapet will involve the use of wet mortar over the stream bed. Wet mortar is toxic to aquatic life. Therefore, mitigation is required.  |
| Installing scour protection at inlet.  | Yes. The installation of scour protection at the inlet will require the use of wet concrete on the stream bed. Wet concrete can have toxic effects on aquatic life. Therefore, mitigation is required.  |



**Table 5.2 Evaluation of the likely effects of the proposed reactive maintenance works in view of the Conservation Objectives of the River Barrow and River Nore SAC [002162].**

| Qualifying Interest  | Conservation Objective as per NPWS (2011a)   | Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?   | Adverse Effect |
|--|--|---|----------------|
| <b>Desmoulin's whorl snail (<i>Vertigo moulinsiana</i>) [1016]</b>     | <i>"To maintain the favourable conservation condition of Desmoulin's whorl snail in the River Barrow and River Nore SAC"</i> | Desmoulin's Whorl Snail and suitable habitat for this species such as calcareous wetlands with reeds and sedges, is not present at the location of the proposed works. Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest. | No             |
| [REDACTED]   | [REDACTED]   | [REDACTED]  | [REDACTED]     |
| <b>White-clawed crayfish (<i>Austropotamobius pallipes</i>) [1092]</b> | <i>"To maintain the favourable conservation condition of White-clawed crayfish in the River Barrow and River Nore SAC"</i>   | White-clawed crayfish have been recorded within close proximity of the bridge (NPWS, 2011a) and are considered to be present within the footprint of the proposed works. White-clawed crayfish are sensitive to the water quality impacts caused by the input of wet mortar and concrete, debris and sediment.. White-clawed crayfish are potentially present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.      | Yes            |
| <b>Sea lamprey (<i>Petromyzon marinus</i>) [1095]</b>                  | <i>"To restore the favourable conservation condition of Sea lamprey in the River Barrow and River Nore SAC"</i>              | Sea Lamprey, Brook Lamprey, River Lamprey, Twaite Shad and Atlantic Salmon are all known to migrate up the River Nore in order to reproduce. These species are sensitive to the water quality impacts caused by the input of wet mortar and concrete to the river systems they inhabit. These species could may also be   | Yes            |

| Qualifying Interest  | Conservation Objective as per NPWS (2011a)  | Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?   | Adverse Effect |
|--|---|---|----------------|
| <b>Brook lamprey (<i>Lampetra planeri</i>) [1096]</b>                    | <i>"To restore the favourable conservation condition of Brook lamprey in the River Barrow and River Nore SAC"</i>   | present within the area that will be dewatered. Therefore, adverse effects on the Conservation Objectives for these Qualifying Interests cannot be ruled out.   |                |
| <b>River lamprey (<i>Lampetra fluviatilis</i>) [1099]</b>                | <i>"To restore the favourable conservation condition of River lamprey in the River Barrow and River Nore SAC"</i>   |   |                |
| <b>Twaite shad (<i>Alosa fallax</i>) [1103]</b>                          | <i>"To restore the favourable conservation condition of Twaite shad in the River Barrow and River Nore SAC"</i>   |   |                |
| <b>Atlantic salmon (<i>Salmo salar</i>) [1106]</b>                       | <i>"To restore the favourable conservation condition of Salmon in the River Barrow and River Nore SAC"</i>  |   |                |
| <b>Estuaries [1130]</b>  | <i>"To maintain the favourable conservation condition of Estuaries in the River Barrow and River Nore SAC"</i>  | Estuaries occur approximately 50 km downstream of the proposed works at a minimum (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.           | No             |
| <b>Mudflats and sandflats not covered by seawater at low tide [1140]</b> | <i>"To maintain the favourable conservation condition of the Mudflats and sandflats not covered by seawater at low tide in the River Barrow and River Nore SAC"</i> | Intertidal mudflats occur approximately 70 km downstream of the proposed works at a minimum (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest. | No             |

| Qualifying Interest   | Conservation Objective as per NPWS (2011a)   | Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?  | Adverse Effect |
|---|--|--|----------------|
| <b>Reefs [1170]</b>   | NPWS (2011a) does not contain a site-specific Conservation Objective for Reefs. Therefore, as per advice from the NPWS, the Conservation Objective for Reefs in another European site, in this case the Hook Head SAC [000764], was used: <i>“To maintain the favourable conservation condition of Reefs”</i> (NPWS, 2011b). | Reefs are located downstream of the proposed works in the saltwater and transitional waters of the River Barrow and River Nore SAC. Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.   | No             |
| <b>Salicornia and other annuals colonizing mud and sand [1310]</b>            | <i>“To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in the River Barrow and River Nore SAC”</i>  | Salicornia and other annuals colonising mud and sand occur approximately 80 km downstream of the proposed works at a minimum (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.  | No             |
| <b>Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]</b> | <i>“To restore the favourable conservation condition of Atlantic salt meadows in the River Barrow and River Nore SAC”</i>  | Atlantic salt meadows occur approximately 75 km downstream of the proposed works at a minimum (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not lead have an adverse effect on the Conservation Objective for this Qualifying Interest.   | No             |
| <b>Otter (<i>Lutra lutra</i>) [1355]</b>                                      | <i>“To restore the favourable conservation condition of Otter in the River Barrow and River Nore SAC”</i>  | No evidence of Otter was recorded during the survey, however Otter are considered to be present. Fish species that Otters rely on as a food source are sensitive to the water quality impacts caused by the input of wet mortar and concrete to the river systems they inhabit. Table 5.1 details the work items that may lead to such impacts. These fish species will also potentially be present within the area that will be dewatered. In addition to this, the proposed works will create a temporary barrier for commuting otters during construction phase. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out. | Yes            |

| Qualifying Interest  | Conservation Objective as per NPWS (2011a)  | Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?  | Adverse Effect |
|--|---|--|----------------|
| <b>Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]</b>  | <i>"To restore the favourable conservation condition of Mediterranean salt meadows in the River Barrow and River Nore SAC"</i>  | Mediterranean salt meadows occur approximately 85 km downstream of the proposed works at a minimum (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest. | No             |
| <b>Killarney fern (<i>Trichomanes speciosum</i>) [1421]</b>  | <i>"To maintain the favourable conservation condition of Killarney Fern in the River Barrow and River Nore SAC"</i>   | Suitable habitat for Killarney Fern is not found in the vicinity of the proposed works. Thus, there are no pathways for impacts from the proposed works to Killarney Fern. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.   | No             |
| [REDACTED]   | [REDACTED]  | [REDACTED]   | [REDACTED]     |
| <b>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]</b> | <i>"To maintain the favourable conservation condition of Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation in the River Barrow and River Nore SAC"</i> | This habitat type is present at the location of the proposed works. This habitat is sensitive to the water quality impacts caused by the input of wet mortar and concrete, debris and sediment. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out.   | Yes            |

| Qualifying Interest   | Conservation Objective as per NPWS (2011a)   | Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?   | Adverse Effect |
|---|--|---|----------------|
| <b>European dry heaths [4030]</b>   | <i>“To maintain the favourable conservation condition of European dry heaths in the River Barrow and River Nore SAC”</i>   | European dry heaths are not present within the likely zone of impact. The closest example of this habitat type within the SAC is at the foothills of the Blackstairs Mountains along the River Barrow Valley (NPWS, 2011a). In addition to this, this habitat is not sensitive to the water quality impacts that are likely to arise from the proposed works. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.   | No             |
| <b>Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]</b> | <i>“To maintain the favourable conservation condition of Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels in the River Barrow and River Nore SAC”</i> | No examples of hydrophilous tall herb fringe communities occur within the footprint of the proposed works. This habitat type occurs in association with some riverside woodlands, unmanaged river islands and in narrow bands along the floodplain of slow flowing stretches of the river. Therefore, it is likely to be present along the River Nore and connected watercourses. The extent of this habitat throughout the SAC has not yet mapped (NPWS, 2011a), therefore according to the precautionary principle it is assumed to be within the receiving environment downstream of the proposed works. Owing to the nature of the proposed works and the sensitivity of this habitat type to water quality impacts caused by the input of wet mortar and concrete, there is potential for indirect effects. Table 5.1 details the work items that may lead to such water quality impacts. Therefore, adverse effects on the Conservation Objective for this Qualifying Interest cannot be ruled out. | Yes            |
| <b>*Petrifying springs with tufa formation (Cratoneurion) [7220]</b>                                  | <i>“To maintain the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion) in the River Barrow and River Nore SAC”</i>                                   | Petrifying springs are not present within the footprint of the proposed works. This habitat type is not sensitive to the water quality impacts that are likely to arise from the proposed works. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.  | No             |
| <b>Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]</b>         | <i>“To restore the favourable conservation condition of Old oak woodland with <i>Ilex</i> and <i>Blechnum</i> in the River Barrow and River Nore SAC”</i>                                    | Old sessile oak woods are located 45 km downstream of the proposed works, just south of Thomastown (NPWS, 2011a). However, this habitat is not sensitive to the types of water quality impacts that are likely to arise from the proposed works. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.  | No             |

| Qualifying Interest   | Conservation Objective as per NPWS (2011a)   | Do the proposed reactive maintenance works provide for any delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?  | Adverse Effect |
|---|--|--|----------------|
| <p><b>*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</b></p> | <p><i>“To restore the favourable conservation condition of Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) in the River Barrow and River Nore SAC”</i></p> | <p>Alluvial forests are located approximately 23 km downstream of the proposed works, just southeast of Kilkenny (NPWS, 2011a). Due to the nature and location of the proposed works in relation to this Qualifying Interest, and the assimilative capacity of the River Barrow and the River Nore, it can be concluded beyond reasonable scientific doubt that the proposed works will not have an adverse effect on the Conservation Objective for this Qualifying Interest.</p> | <p>No</p>      |

## 6. SUMMARY OF ADVERSE EFFECTS

In Section 5, it was established that one European site occurs within the likely zone of impact and that there are no pathways for effects between the proposed works and any other European sites. It was established that, in the absence of appropriate mitigation, interruptions or delays in achieving certain Conservation Objectives of both of the sites, i.e. adverse effects on the integrity of those sites, as a result of the reactive maintenance works, cannot be ruled out. A list of the Qualifying Interests where adverse effects could not be excluded are presented in Table 6.1 below.

**Table 6.1 Summary of the European sites likely to be affected by the proposed reactive maintenance works and the Qualifying Interests likely to be affected in each site.**

| European site   | Qualifying Interest   |
|---|---|
| <b>River Barrow and River Nore SAC [002162]</b>   | <div style="background-color: black; height: 15px; width: 100%;"></div> |
|   | [1092] White-clawed Crayfish ( <i>Austropotamobius pallipes</i> )       |
|   | [1095] Sea Lamprey ( <i>Petromyzon marinus</i> )                        |
|   | [1096] Brook Lamprey ( <i>Lampetra planeri</i> )                        |
|   | [1099] River Lamprey ( <i>Lampetra fluviatilis</i> )                    |
|   | [1103] Twaite Shad ( <i>Alosa fallax</i> )                              |
|   | [1106] Atlantic Salmon ( <i>Salmo salar</i> )                           |
| [1355] European Otter ( <i>Lutra lutra</i> )  |   |
| <div style="background-color: black; height: 15px; width: 100%;"></div>   |   |
| [3260] Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation |   |
| [6430] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels                                      |   |

## **7. ASSESSMENT OF ADVERSE EFFECTS**

### **Adverse Effects during Construction**

As shown in the Table 5.2 above, there is potential for adverse effects on the integrity of the River Barrow and River Nore SAC. Instream works, the use of wet mortar/concrete and the potential for sedimentation may lead to impacts on aquatic life including direct and indirect impacts on Qualifying Interests of the SAC. Mitigation is required to reduce the temporary barrier for Otter and the risk of sediment release and the accidental spillage of wet mortar and concrete into the Ballycomey Stream.

### **Adverse Effects during Operation**

Following the construction and maintenance works at Ballycomey Culvert, the reactive maintenance works do not provide for any risk of ongoing pollution, changes to the hydrological regime or disturbance. Therefore, there are no anticipated adverse effects of the proposed works during operation.



## 8. MITIGATION

In order to avoid adverse effects on the integrity of the River Barrow and River Nore SAC, the following mitigation measures will be implemented:

### All works

- In order to protect fisheries, in-stream works will only be undertaken during the period beginning 1<sup>st</sup> July and ending 30<sup>th</sup> September, subject to agreement with IFI.
- The Contractor will procure a suitably qualified Ecologist to oversee the works and provide advice in relation to the works, impacts and mitigation measures.
- All equipment, including PPE, which comes into contact with the watercourse will be cleaned prior to use and will be disinfected prior to leaving each site using Virkon Aquatic or similar. Equipment will be disinfected at least 20 m from the watercourse. The Contractor will procure a suitably qualified Ecologist to oversee the works and provide advice in relation to the works, impacts and mitigation measures. In particular, the Contractor's Ecologist will be present for the construction of the dams, dewatering of the area between the dams and concrete pouring.
- In-stream works will comply with IFI (2016) *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters*.
- A stepladder and hessian or similar material will be placed on the river bank access points to prevent erosion of the riverbank. This will be removed when the works are completed.
- Any temporary lighting will be restricted to the works area and will avoid illumination of the watercourse. The area inside the dam will be fitted with a ramp to allow Otter to escape. Otter will be prevented from entering pipes by using screens, silt bags or other capping.
- A method statement will be produced by the Contractor and approved by the Employer's Representative and the Contractor's Ecologist. It will also be submitted to IFI for approval. The method statement will contain the following measures to protect water quality:
  - Cementitious material shall not be allowed to enter the watercourse.
  - Plant are not permitted to enter the watercourse.
  - Stockpiling of materials and/or storage of fuels shall not be permitted at the site.
  - Refuelling shall not be permitted within 50 m of the watercourse.
  - Spill kits shall be available on-site.

### Masonry repointing and construction of parapets:

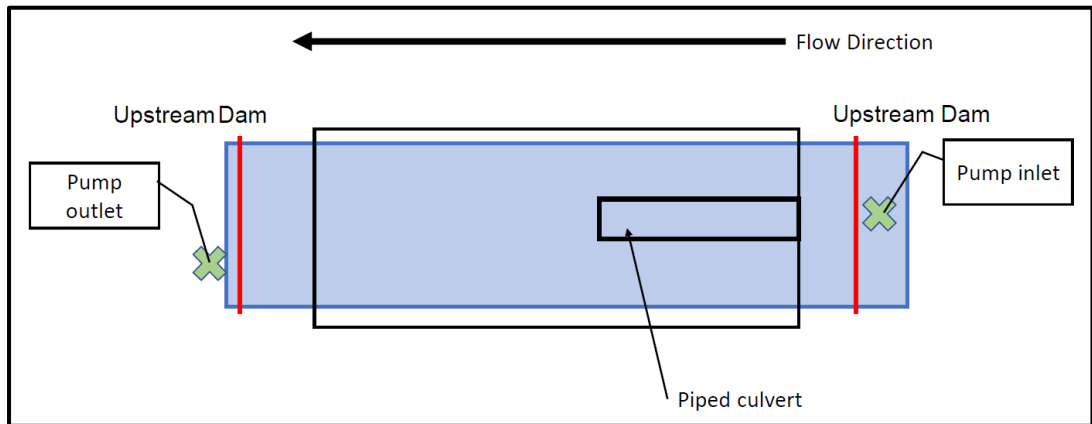
- It is anticipated that the masonry and concrete construction and repairs will be undertaken from the bridge deck, road verge, on foot or from scaffolding, which will be erected on the riverbed. It is likely that the repairs to the spandrel walls, wingwalls and abutments will be carried out while the riverbed is dewatered, however this may not be the case.
- If masonry repair and repointing is carried out on foot, a mobile catch net or plastic sheeting will be used to prevent mortar and/or wet concrete falling into the river channel.

- If scaffolding is used, the scaffolding deck will completely capture all falling debris which will be removed and disposed of safely. The bed of the river at the works location consists of stones and cobbles and the installation of scaffolding feet directly into the riverbed would release negligible amounts of sediment.
- Only one bucket of wet mortar will be brought to the work site at any time by each person carrying out the repointing.
- The catch net will be approved by the Employer's representative and the contractor's Ecologist.
- Concrete and mortar will be mixed in a watertight container at least 20 m from the stream.
- The use of wet concrete and wet mortar will not be permitted if rain is forecast in the next 24 hours.

Installation of the concrete base, repair of scour damage:

- The use of wet concrete and wet mortar will not be permitted if rain is forecast. The installation of the concrete base may commence when no heavy rain is forecast in the next seven days. The weather forecast will be monitored daily by the Contractor. If heavy rainfall is predicted which could overtop the dams, overwhelm the pump or otherwise impact the works area, works will cease and the dams and any other equipment will be removed. The recommencement of the works will be approved by the Employer's Representative.
- Water will be diverted away from the works area using two temporary dams, one upstream of the pipe inlet and the other downstream the structure (See Plate 5 below). The dams will be constructed using sealed sandbags containing clean sand and plastic sheeting or similar. Rubber 'aqua dams' are also acceptable. The area between the dams will then be dewatered using a pump. A secondary pump will be available for use should the primary pump fail.
- A flume will be constructed to carry the stream through the structure. The first dam will be constructed upstream of the culvert inlet to allow scour repairs to be carried out. The second dam will be constructed below the downstream access point c. 2 m downstream of the structure. The flume will have a screen at the inlet to prevent fish and debris entering it.
- All water being pumped out will pass through a silt trap or silt sock to prevent scour of the riverbed and silt entering the water downstream. The silt trap will be approved by the Employer's Representative and the Contractor's Ecologist. The contractor will be responsible for ensuring that the silt trap is working correctly.
- The pump used for dewatering will be supervised at all times to ensure it is operating correctly. The contractor will be responsible for ensuring that the pump is working properly. A secondary pump will be available in site should the primary pump fail.
- Refuelling of the pump will take place on the carriageway or verge and not in the watercourse or on the bank.
- During dewatering, the bridge will be supervised by the Contractor's Ecologist, and any fish or crayfish will be removed by hand and placed in the river immediately downstream of the dewatered area.
- Following dewatering, any stones and debris will be removed by hand. The stones will be retained and embedded in the concrete bed. The concrete base will then be poured onto a level surface.
- Debris other than stones removed from the riverbed to create a level surface. The concrete base will ramp up to meet the culvert outlet. Stones taken from the riverbed will be embedded into the concrete to ramp to reduce the flow velocity.

The concrete base will be checked by the Employer's Representative prior to removal of the dams to ensure it is dry.



**Plate 5. Dams and pump set up.**

## **9. ASSESSMENT OF IN-COMBINATION EFFECTS**

Article 6(3) of the Habitats Directive requires that AA be carried out in respect of plans and projects that are likely to have significant effects on European sites, “*either individually or in combination with other plans or projects*”. Therefore, regardless of whether or not the likely effects of a plan or project are significant when considered on their own, the significance of the combined effects of the plan or project under assessment and other past, present or foreseeable future plans or projects must also be evaluated.

Cumulative impacts were assessed by looking at all current developments in planning and proposed future developments within the likely zone of impact. Beyond 5 years into the future, there is too much uncertainty associated with development proposals and, therefore, this Natura Impact Statement can only be based on data that is readily available.

There are no current or future plans or projects within the likely zone of impact which could lead to in-combination effects.

### **Conclusion of Assessment of In-combination Effects**

Due to the small scale and temporary nature of the proposed routine maintenance works and the reactive maintenance works, there is no potential for in-combination effects with other plans and projects.

## **10. RESIDUAL IMPACTS AND CONCLUSION/ RECOMMENDATION**

Following the inclusion of the mitigation measures in Section 8, it can be concluded beyond all reasonable scientific doubt that construction and operation of the proposed reactive maintenance works will not adversely affect the integrity of the River Barrow and River Nore SAC, in view of the Conservation Objectives for the Qualifying Interests listed in Table 5.2 of this report.

It is the considered opinion of ROD, as the author of this NIS, that, in making its AA in respect of the proposed reactive maintenance works at Ballycomey Culvert [KK-N78-005.50], Transport Infrastructure Ireland, as the Competent Authority in this case, should determine that, given the full and proper implementation of the mitigation prescribed in this NIS, the proposed works, either individually or in combination with other plans or projects, will not adversely affect the integrity of the River Barrow and River Nore SAC or any other European site.

## 11. REFERENCES

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