

TO 334 Munster Bridges Team Maintenance

Leader's Bridge Reactive Maintenance – Natura
Impact Statement (NIS)

Transport Infrastructure Ireland (TII)

05/10/2023

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1. Introduction

Transport Infrastructure Ireland engaged Atkins to undertake the structural assessment of Leader's Bridge (CC-N72-010.00) as part of its role as Employer's Representative for the Munster Bridges Term Maintenance Contract No.4. The purpose of the structural assessment was to determine the extent of the damage, the impact on the load capacity of the structure and to inform the subsequent repairs to be undertaken as reactive maintenance under the Munster Bridges Term Maintenance contract. The structural assessment of the structure was undertaken in accordance with TII Publication AM-STR-06026 *The Assessment of Road Bridges and Structures*. As a result of this assessment a programme of works at CC-N72-010.00 Leader's Bridge have been proposed.

TII engaged Atkins to undertake Screening for Appropriate Assessment and to prepare a Natura Impact Statement for proposed works at Leader's Bridge (CC-N72-010.00).

The Location of Leader's is shown in Figure 1.1 below.

A series of photos of Leader's Bridge (CC-N72-010.00) taken during the site survey on the 27th of February 2023 are shown in Section 1.2.

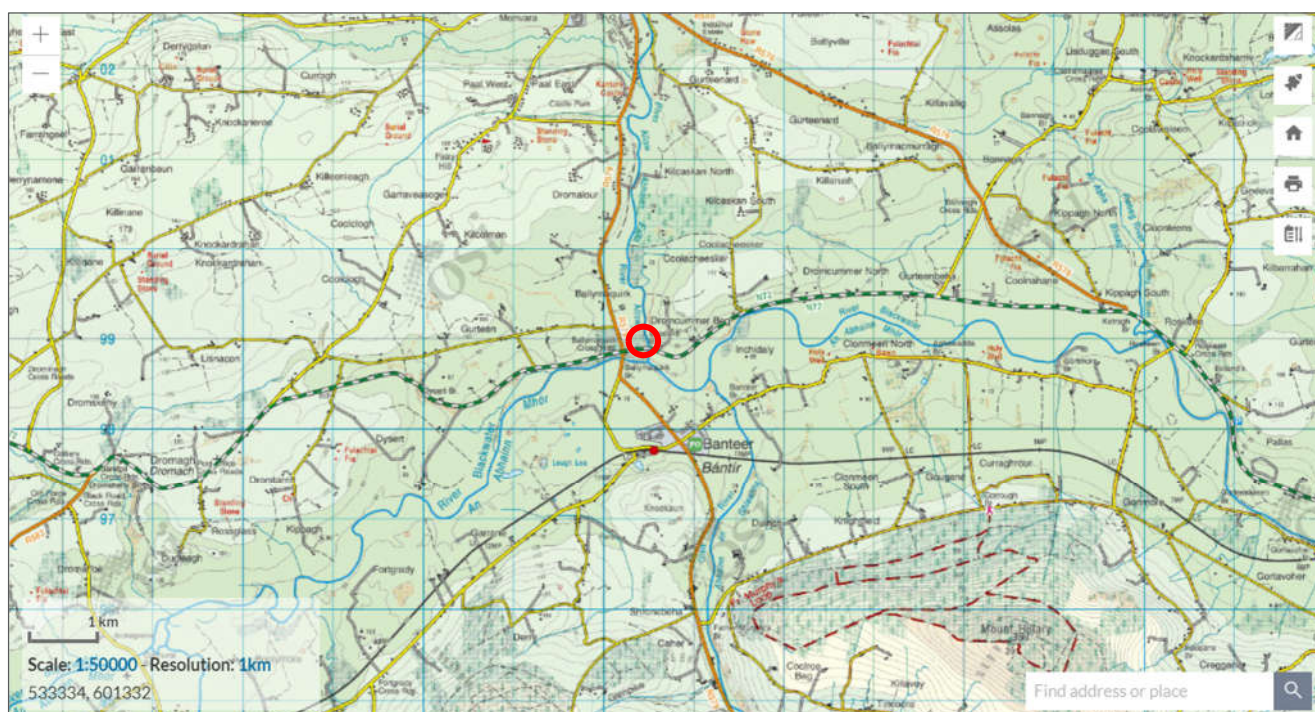


Figure 1.1 Location of Leader's Bridge (red circle) (Source: NBDC Maps).

1.1. Project Description

Leader's Bridge is a large structure which is classified in three discrete sections: -

1. CC-N72-009.00 Leader's Bridge Western Flood Pass.
2. CC-N72-010.00 Leader's Bridge.
3. CC-N72-011.00 Leader's Bridge Eastern Flood Pass.

The reactive maintenance is proposed only for CC-N72-010.00, which is a masonry three arch structure in the centre.

The proposed works on Leader's Bridge comprise the reconstruction of the north face of the eastern masonry cutwater, grouting of the eastern pier, masonry repointing to the eastern pier and abutment and the installation

of rock armour encapsulating the eastern pier. Photos of areas which require repairs on Leader's Bridge are shown in Figure 1.2.

The eastern pier is in poor condition with full mortar loss and displacement evident up to 3m high from the base of the pier. The eastern abutment opposite the eastern pier (across the main channel) also shows evidence of significant mortar loss below water level (approximately 1m from bed level in height). The displaced masonry to the north cutwater of the east pier is to be rebuilt by resetting the existing stonework. The eastern pier will be grouted to fill open voids between the stones with the joints repointed with lime mortar. The mortar to be used in the works will be NHL mortar to match the existing. Rock armour is to be installed around the eastern pier to prevent any further scouring of the bed material.

The works are envisaged to take 4 weeks to complete.

The works will be undertaken within temporary dry working area formed by the placement of double sealed 1t sandbags which will divert the water through the central arch. 1t sandbags will be installed from the eastern embankment, through the central arch to the downstream side of the eastern pier. Sandbags will be installed at the downstream end to prevent backwatering of the dry working area. The sandbags will be lifted into position from the bridge deck and the embankment. No machinery is permitted to enter the watercourse. IFI Biosecurity protocols will be followed for the duration of the works. This is particularly critical given the recent record of Crayfish plague in the River Blackwater¹.

The dry working areas will contain any falling material from the works and prevent contamination of the surrounding watercourse. The working area will be electro-fished by IFI or approved third parties prior to the pumping out of water from the works area to establish the dry works area.

Access to the working areas will be provided from the eastern embankment. A lane closure will be required over the structure for the duration of the installation and removal of the water management.

A site compound will be located off the structure, set back from the watercourse. It may be necessary to store small amounts of fuel within the site compound and thus away from the bridge. Any refuelling to be done will be restricted to within the site compound area with drip trays in place. Furthermore, any chemical, fuel and oil stores will be located on an impervious base within a secured bund with a storage capacity 110% of the stored volume. Grouting operations will be completed in the dry works area with pumps located on the eastern embankment. The appointed Contractor will determine the need for welfare facilities. If required, these will also be located away from the bridge within the site compound, as will the need to park any vehicles. The site compound will be returned to existing condition following the works.

The initial Screening is presented in Chapter 5.0. A comprehensive description of proposed works and associated mitigation measures is included in Chapter 7.0 and informs the Appropriate Assessment.

The Proposed Plan and North Elevation of Leader's Bridge are displayed in Figures 1.3 and 1.4 (see full scale drawings in Appendix C).

¹ <https://www.irishexaminer.com/news/arid-41177050.html>

1.1.1. Detailed Description of Proposed Works

Site Rules & Safety Notes

1. All operatives will be Site Inducted on their first day on site and have a minimum of a valid Safe Pass card, as standard.
2. All works to be carried out within the agreed site boundary.
3. All operatives will be required to wear the minimum P.P.E as follows: - hard hats, hi-vis vests, safety boots, hearing protection, gloves, goggles/safety glasses and dust masks to be worn, if required.
4. Permission required to bring site vehicles / plant / materials onto site.
5. If required, all personnel will seek permission to enter any area where another trade may be operating.
6. Working hours to be strictly within specified site hours.
7. All plant operators to have relative and valid CSCS card.
8. All persons on site to follow the instructions of site management.
9. If an operative feel work conditions are unsafe, then they are to PAUSE the job / stop works immediately and inform Site Management
10. .Any site works areas to be set up will include safety barriers and signage around material storage zones.
11. Welfare facilities will be provided on site.
12. Main access route to site will be from the N72. Access / egress points are to be kept closed at all times and locked out of site hours. Keys will remain with Site foreman at all times.
13. All deliveries/collections to site are to take place as per Cumnor Construction Ltd.'s Traffic Management Plan.
14. All vehicles are to abide by Cumnor Constructions Traffic Management Plan.
15. Under no circumstances are delivery trucks or vans are to be left unattended at any time.
16. Documentation and items to be kept on site at all times include Medium first aid Box, fire extinguisher, Construction H&S Plan and Method Statements signed and dated by all involved in the works, Site Sign in / out Register.

Traffic Management

- Traffic management will be set up as set out below for general works at this structure (Figure 6.1).
- Site vehicles will park within the temporary traffic management set up on the hard shoulder.
- The site access required route will be through a woodland area which leads to the riverbank, route is shown below (Figure 6.2).²

² This access track is already in place, having been constructed as part of the works on the adjoining section N72.

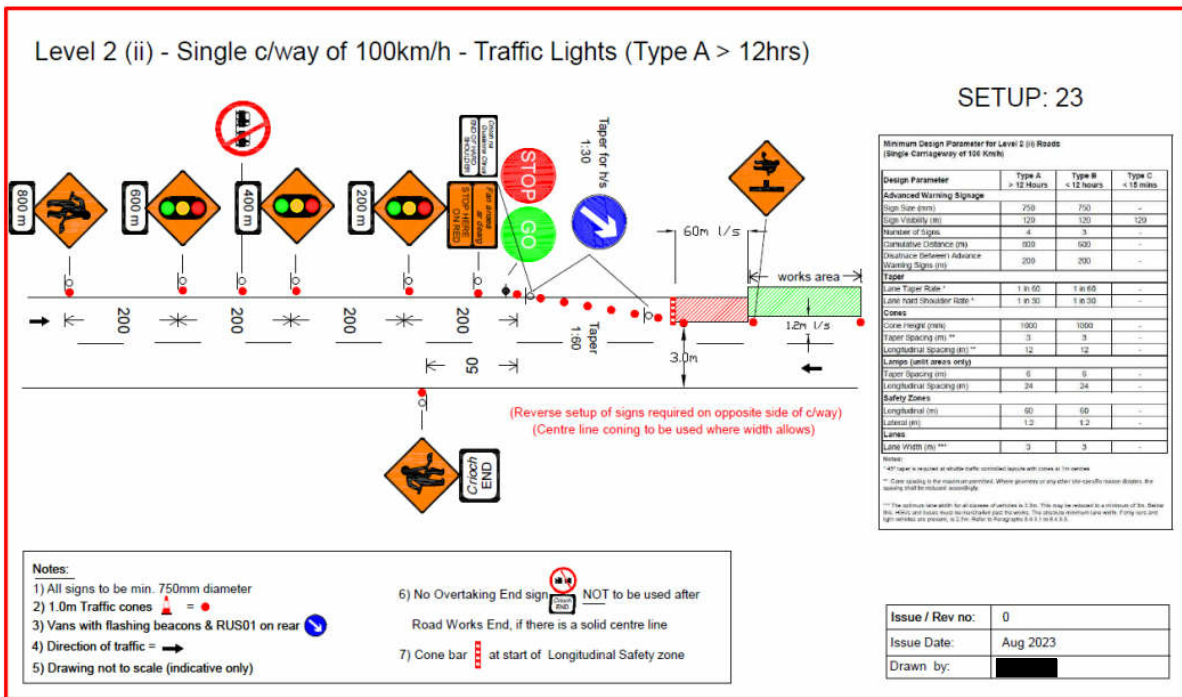


Figure 1.2 Traffic Management proposals.

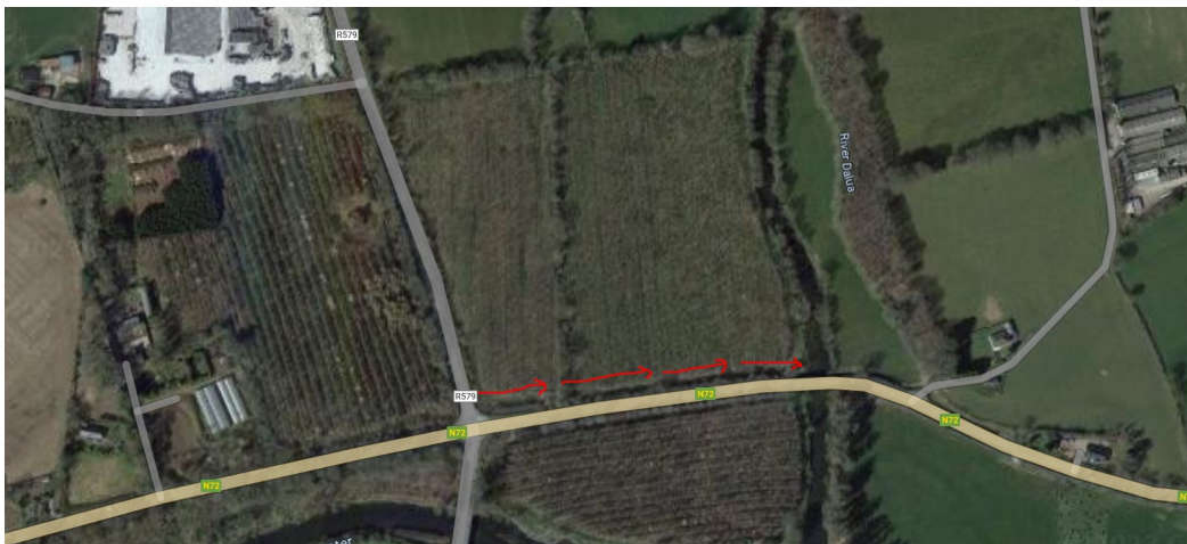


Figure 1.3 Access route from R579 to Leader's Bridge (see Plate 4.32 & 4.34).

Sequence of Works

Site setup: -

- Setup TTMP as per plan.
- Haul Road/ Crane pads.
- Setup site compound in a location agreed with the client, land owner and local authorities if required.
- Setup water management.
- Repointing works.
- Grouting.

- Demobilise.

Traffic Management: -

- Set up TTMP as per plan. The road will be reduced to one lane over the area of works for certain elements of the work.
- Traffic management should only be setup by a CSCS cardholder.

Haul Road/ Crane pads: -

- Two no. haul roads will be required for crane access to allow the installation of water management both upstream and downstream of the structure.
- Two no. crane pads will need to be constructed at both locations also.
- The haul road to the NW side of the structure will also provide access to a site compound.
- Crane pad locations shown below (see Figure 6.3).



Figure 1.4 Sketch showing proposed location of crane pads.

- A survey of the ground conditions will be done before works commence to determine the construction method and required quantities of material for haul roads/ crane pads.
- The haul road should be suitable to support a crane and site vehicles.

Site Compound: -

- A site compound will be required on the NW side of the river.
- Once the haul road has been established an area will be fenced off using Herras Fences.
- Welfare facilities and a storage container will be kept in the compound.

Water Management: -

- IFI will be notified of the works prior to beginning on site.
- No works will be carried out if water levels are unfavourable.

- Life jackets to be worn by operatives working in the watercourse if the water level is deemed dangerous by site management. This will be monitored continuously.
- Vikron spray will be used on any plant, PPE or tools in or near the watercourse.
- The water management will be setup in a manner which will allow works to be done to the pier and the SE abutment under one setup.
- The crane will setup on the crane pad upstream of the structure.
- A lift plan should be provided by the Crane subcontractor and presented to the Resident Engineer before lifting operations begin.
- A banksman will assist the crane for lifting operations.
- Sealed 1-ton bags of sand will be delivered to site by truck.
- The crane will lift the bags individually off the truck and place them in the watercourse, starting at the upstream embankment and positioning them at a taper toward the bridge as shown below.

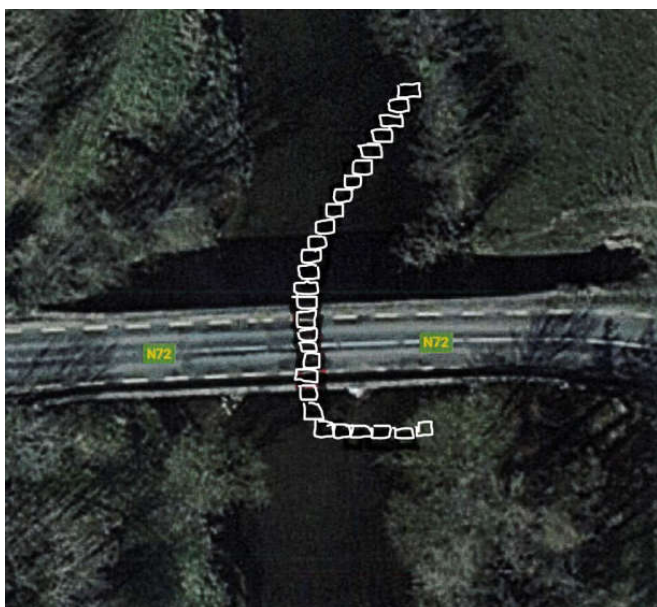


Figure 1.5 Sketch of proposed alignment of sealed sandbags.

- Two general operatives will assist with the final positioning of the sandbags.
- Smaller hessian bags will be used to seal between the 1-ton bags where required.
- 1-ton sandbags may need to be double stacked depending on water levels at the time.
- The crane will continue positioning sandbags until it reaches the structure, at this point the crane will need to change location to the pad on the SE embankment to complete the water management downstream.
- Some trees may need to be limbed or removed if necessary to complete the works.
- Once the 1-ton sandbags have been installed and the water management is complete IFI will come on site to the works area.
- Once complete a 3" water pump will be used to de-water the works area.
- Once complete works can begin to the pier and abutment.

Repointing abutment and pier: -

- Repointing works to the abutments and pier may run simultaneously.
- These works can only be done in the dry.
- NHL5 lime will be used for repointing works.
- Stone masonry construction shall comply with the requirements of TII publication CC-SPW-02400 "Specification for Road Works Series 2400 - Brickwork, Blockwork and Stonework".
- Surface Finish of stone masonry shall be smooth and free from steps and undulations in the surface exceeding 30mm.
- Prior to commencement of all repointing and repair works, all vegetation and algae to be removed from face of walls and arch barrel soffits in accordance with the specification. All joints with mortar loss evident shall be repointed.
- Catch trays will be used to catch mortar droppings while repointing.
- All repointing shall be undertaken with lime mortar in accordance with the contents of CC-SPW-02400 and CC-SCD-02407. Repointing shall only be undertaken by stonemasons who have attended the TII approved 'Masonry Arch Bridge Repair Workshop' or are Members of the Guild of Master Craftsmen and their qualifications shall be submitted to the Employer's Representative for approval.
- Mortar and repointing existing masonry work shall be NHL5 lime mortar Mix Reference (a) in accordance with Table 24/4 of Series 2400 - Specification for Masonry Repointing.
- All mortar beds shall be of a thickness to match the adjacent stonework as closely as possible. Particular care shall be taken in respect of the finished appearance of the mortar joints in accordance with Clause 2456. Where no adjacent stonework exists, bed thickness and form shall be to the reasonable satisfaction of the Employer's Representative. The colour of the mortar shall match the existing to the reasonable satisfaction of the Employer's Representative.

Grouting to Pier: -

- When repointing is complete grouting of the pier will begin.
- The traffic over the structure will be reduced to one lane and the grout pump will be setup on the carriageway over the structure.
- The grouting of the pier should be undertaken using a neat Portland cement grout.
- A grout pump will be setup on a drip tray for the duration of these works.



- An external water source will be used to supply water to the grout pump.

- Communication between the grouting operator and the grout pump operator to be via walkie talkie.
- The grout shall be finished recessed to the existing masonry and finished with NHL mortar pointing in order to preserve the historic appearance of the structure. The final strength of the grout shall not exceed that of the limestone masonry and shall be low in shrinkage and have a good flow rate for effective penetration.

Demobilise: -

- Remove water management.
- Remove crane pads.
- Remove site compound.
- Remove haul roads.
- Site clean-up.
- De-mobilise.



Figure 1.2 Leader's Bridge Reactive Maintenance.

1.2. Bridge Photos

The following series of photos were taken during the site visit of Leader's Bridge (CC-N72-010.00) in February 2023.



Plate 1.1 View of Leader's Bridge.



Plate 1.2 Blocked western span of Leader's Bridge.



Plate 1.3 Blocked western span of Leader's Bridge.



Plate 1.4 View of Western Arch.

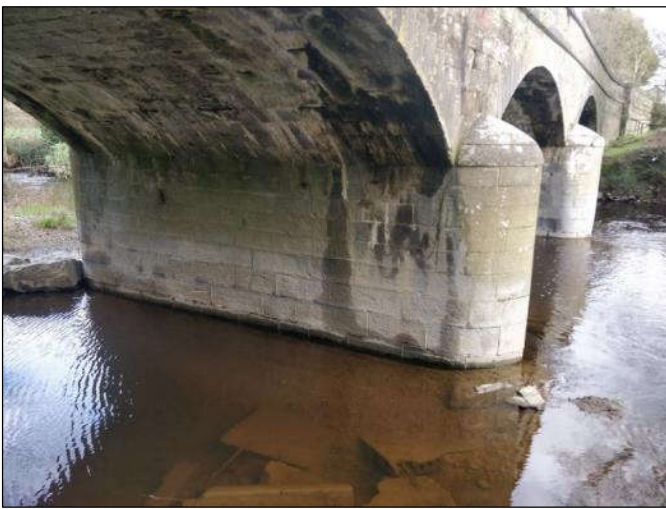


Plate 1.5 Mortar washout at abutments.



Plate 1.6 Masonry damage of north cutwater of east pier.



Plate 1.7 Masonry damage of north cutwater of east pier.



Plate 1.8 View of damage on embankments.



Plate 1.9 View of road above Leader's Bridge.

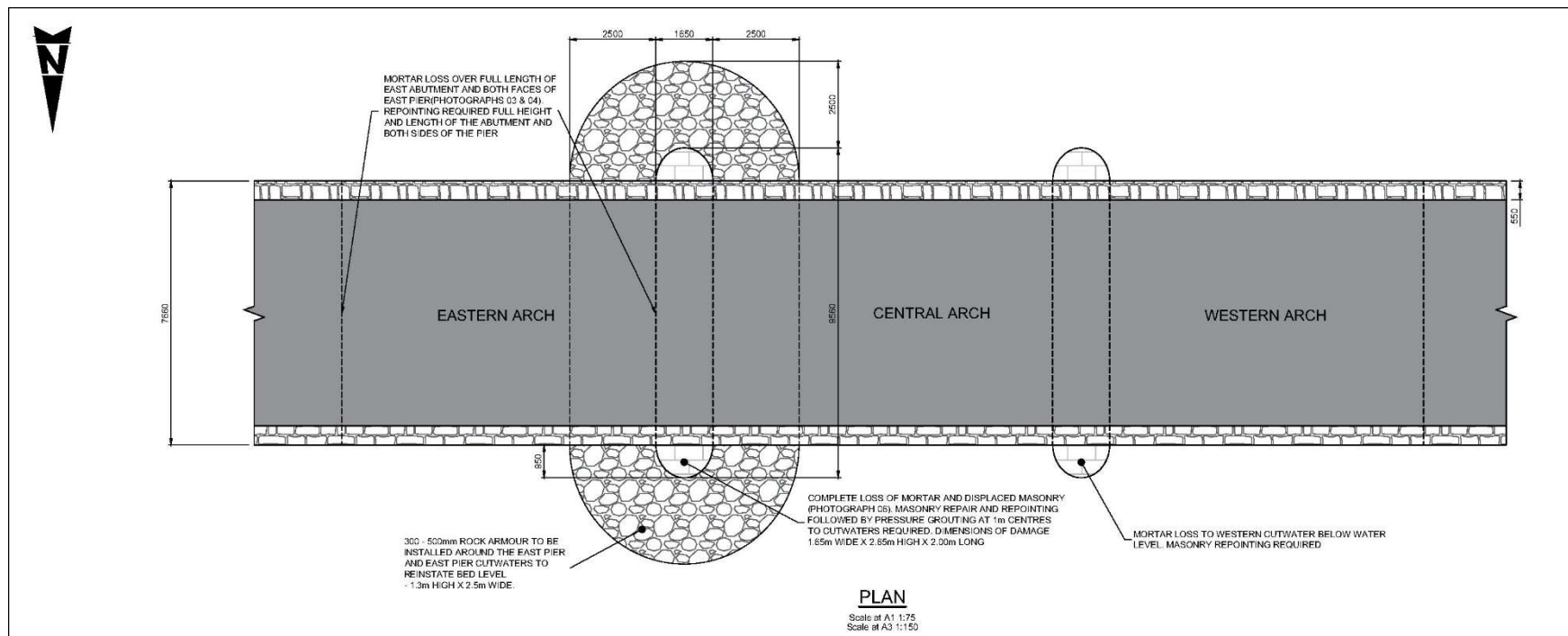


Figure 1.3 Leader's Bridge Proposed Plan.

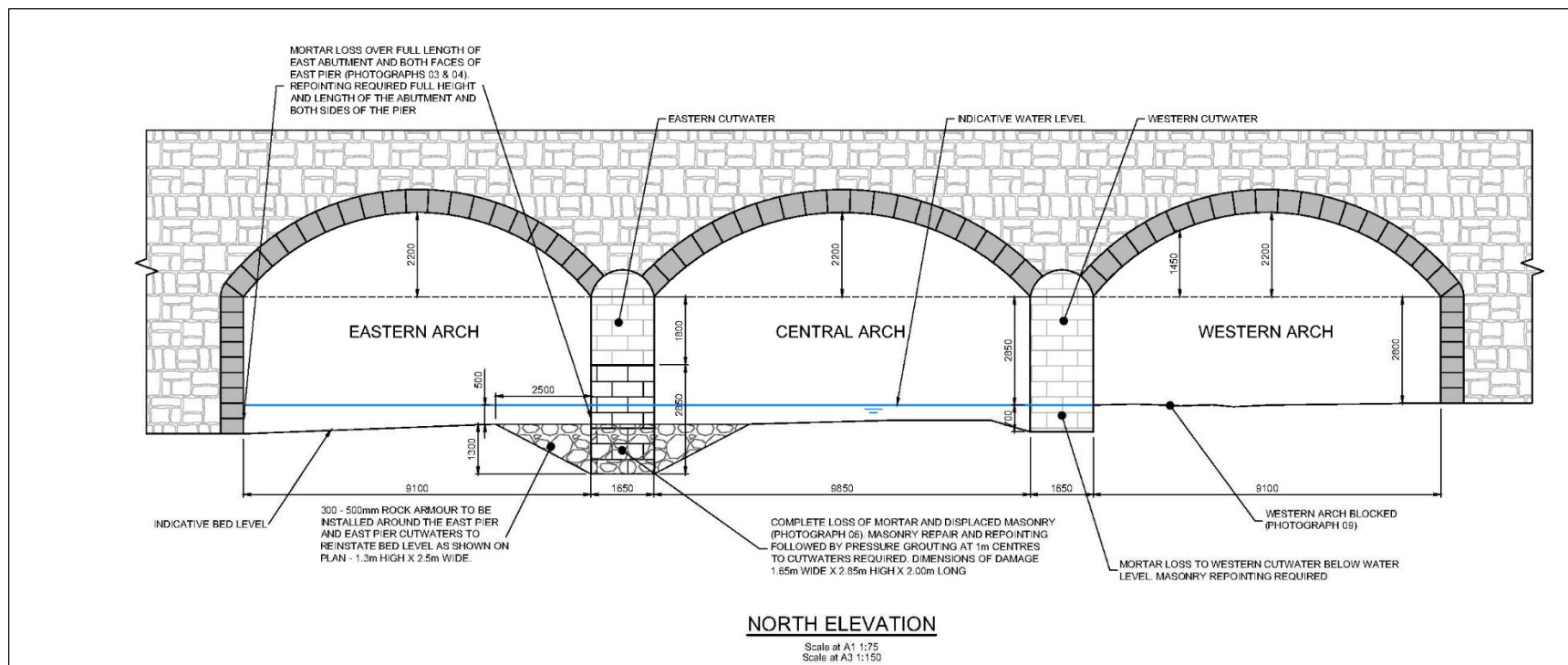


Figure 1.4 Leader's Bridge - North Elevation.

2. Scope of Study

2.1. Legislative Context

Natura 2000

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (“the Habitats Directive”) is a legislative instrument of the European Union (EU) which provides legal protection for habitats and species of Community interest. Article 2 of the Directive requires the maintenance or restoration of such habitats and species at a favourable conservation status, while Articles 3 to 9, inclusive, provide for the establishment and conservation of an EU-wide network of special areas of conservation (SACs), known as Natura 2000, which also includes special protection areas (SPAs) designated under Article 4 of Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (“the Birds Directive”). Both SACs and SPAs are commonly referred to as “European sites” or “Natura 2000 sites”.

SACs are selected for natural habitat types listed on Annex I to the Habitats Directive and the habitats of species listed on Annex II to the Habitats Directive. SPAs are selected for species listed on Annex I to the Birds Directive and other regularly occurring migratory species. The habitats and species for which a Natura 2000 site is selected are referred to as the “qualifying interests” of that site and each is assigned a “conservation objective” aimed at maintaining or restoring its “favourable conservation condition” at the site, which contributes to the maintenance or restoration of its “favourable conservation status” at national and European levels.

Appropriate Assessment

Article 6 of the Habitats Directive deals with the management and protection of Natura 2000 sites. Articles 6(3) and (4) set out the decision-making process, known as “Appropriate Assessment” (AA), for plans or projects in relation to Natura 2000 sites. Article 6(3) states: -

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

The first sentence of Article 6(3) provides a basis for determining which plans and projects require AA, i.e. those “not directly connected with or necessary to the management of [one or more Natura 2000 sites] but likely to have a significant effect thereon, either individually or in combination with other plans or projects”. In *Waddenzee* (C-127/02), the Court of Justice of the European Union (CJEU) ruled that significant effects must be considered “likely” if “it cannot be excluded, on the basis of objective information”, that they would occur. This clearly sets a low threshold, such that AA is required wherever there is a reasonable possibility of significant effects on a Natura 2000 site. In the same judgment, the CJEU established that the test of significance relates specifically to the conservation objectives of the site concerned, i.e. “significant effects” are those which, “in the light, inter alia, of the characteristics and specific environmental conditions of the site”, could undermine the site’s conservation objectives. In addition to the effects of the plan or project on its own, the combined effects arising from the plan or project under consideration and other plans and projects must also be assessed (see Section 6.4 for more details).

The last part of the first sentence of Article 6(3) defines AA as an assessment of the “implications [of the plan or project] for the site in view of the site’s conservation objectives”. In the second sentence, Article 6(3) requires that, prior to agreeing to a plan or project, the competent authority must “ascertain” that “it will not adversely affect the integrity of the site concerned”. In *Sweetman v. An Bord Pleanála* (C-258/11), the CJEU ruled that a plan or project “will adversely affect the integrity of that site if it is liable to prevent the lasting preservation of the constitutive characteristics of the site that are connected to the presence of a priority natural habitat whose conservation was the objective justifying the designation of the site in the list of sites”. On that basis, EC (2018) described the “integrity of the site” as “the coherent sum of the site’s ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations

of species for which the site is designated". As such, the "integrity" of a specific site is defined by its conservation objectives and is "adversely affected" when those objectives are undermined. In *Waddenzee*, the CJEU ruled that the absence of adverse effects can only be ascertained "*where no reasonable scientific doubt remains*".

The "precautionary principle" applies to all of the legal tests in AA, i.e. in the absence of objective information to demonstrate otherwise, the worst-case scenario is assumed. Where the tests established by Article 6(3) cannot be satisfied, Article 6(4) applies (see explanation in Section 2.2 below).

Competent authority

The requirements of Articles 6(3) and (4) are transposed into Irish law by, inter alia, Part 5 of the European Communities (Birds and Natura Habitats) Regulations, 2011 (as amended) ("the Habitats Regulations") and Part XAB of the Planning and Development Act, 2000 (as amended) ("the Planning and Development Acts"). As per the second sentence of Article 6(3), it is the "competent national authorities" who are responsible for carrying out AA and, by extension, for determining which plans and projects require AA. The competent authority in each case is the authority responsible for consenting to or licensing a plan or project, e.g. local authorities, An Bord Pleanála, Transport Infrastructure Ireland (TII) or a Government Minister. In all cases, it is the competent authority who is responsible for determining whether or not a plan or project requires AA and for carrying out the AA, where required.

2.2. Appropriate Assessment Process

The AA process can be described as being made up of three distinct stages, as described below, the need to progress to each stage being determined by the outcome of the preceding stage.

Stage 1: Screening – This stage involves a determination by the competent authority as to whether or not a given plan or project required AA. As explained in Section 2.1, AA is required in respect of any plan or project not directly connected with or necessary to the management of a Natura 2000 site, but for which the possibility of likely significant effects on one or more Natura 2000 sites cannot be excluded. In *People Over Wind* (C-323/17), the CJEU ruled that measures intended to avoid or minimise harmful effects on a Natura 2000 site cannot be considered in making this determination. Consideration of the potential for in-combination effects is also required at this stage.

Stage 2: Appropriate Assessment – This stage involves a detailed assessment of the implications of the plan or project, individually and in combination with other plans and projects, for the integrity of the Natura 2000 site(s) concerned. This stage also involves the development of appropriate mitigation to address any adverse effects and an assessment of the significance of any residual impacts following the inclusion of mitigation. In *Kelly v. An Bord Pleanála* (IEHC 400), the High Court ruled that a lawful AA must contain complete, precise and definitive findings based on examination and analysis, and conclusions and a final determination based on an evaluation of the findings. In the same judgment, the High Court stressed that, in order for the findings to be complete, precise and definitive, the AA must be carried out in light of best scientific knowledge in the field and cannot have gaps or lacunae. In *Holohan v. An Bord Pleanála* (C-461/17), the CJEU clarified that AA must "*catalogue the entirety of habitat types and species for which a site is protected*" (i.e. the qualifying interests of the site) and assess the implications of the plan or project for the qualifying interests, both within and outside the site boundaries, and other, non-qualifying interest habitats and species, whether inside or outside the site boundaries, "*provided that those implications are liable to affect the conservation objectives of the site*". The proposer of a plan or project requiring AA is furnishes the competent authority with the scientific evidence upon which to base its AA by way of a Natura Impact Statement (NIS) or Natura Impact Report (NIR). If it is not possible to ascertain that the plan or project will not adversely affect one or more Natura 2000 sites, authorisation can only be granted subject to Article 6(4).

Stage 3: Article 6(4) – If a plan or project does not pass the legal test at Stage 2, alternative solutions to achieve its aims must be considered and themselves subject to Article 6(3). If no feasible alternatives exist, authorisation can only be granted where it can be demonstrated that there are imperative reasons of overriding public interest (IROPI) justifying its implementation. Where this is the case, all compensatory measures must be taken to protect the overall coherence of Natura 2000.

The three stages described above are illustrated in Figure 2.1 below.

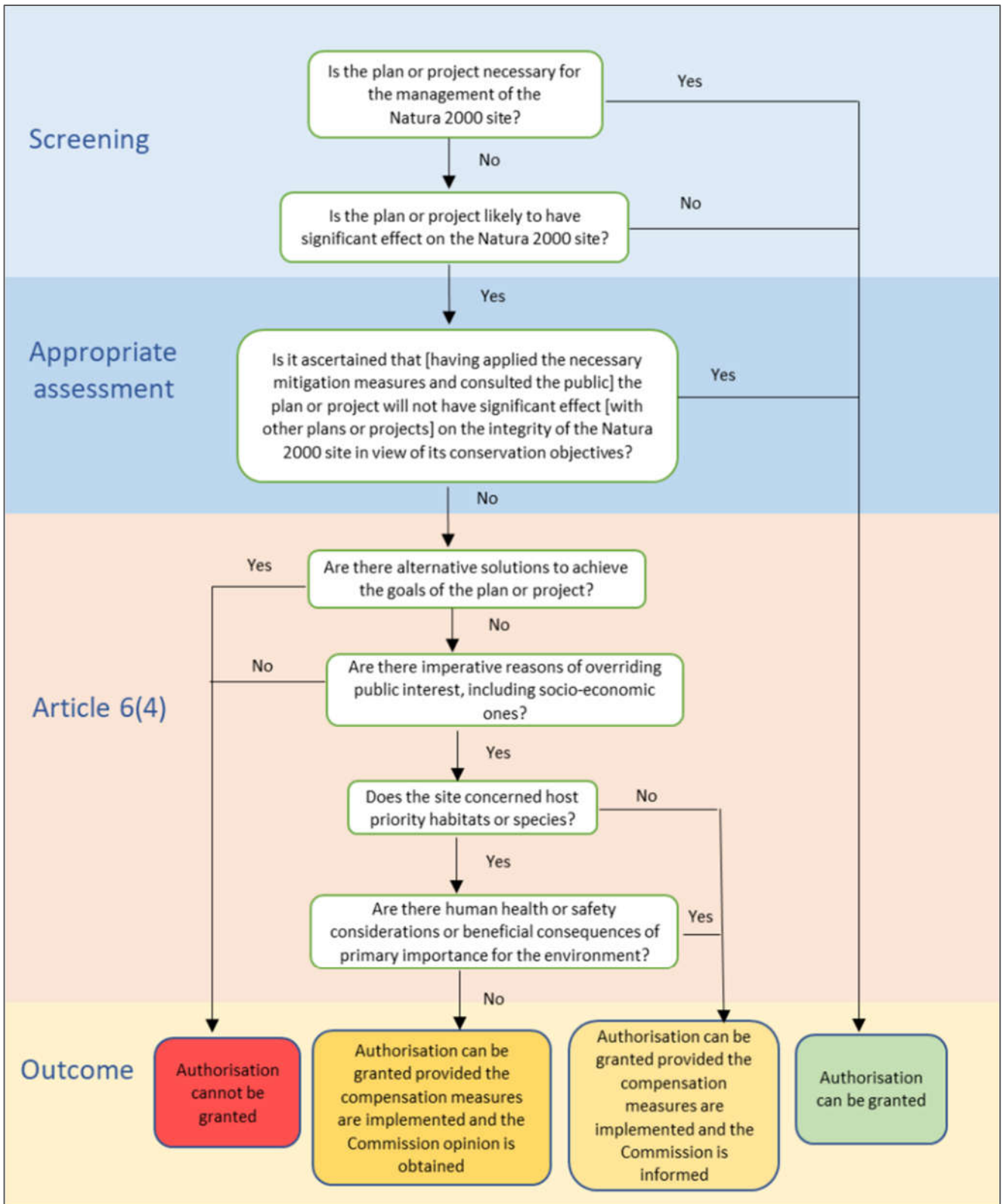


Figure 2.1 Stages of the Appropriate Assessment process (EC, 2021a).

3. Methodology

3.1. Sources of Guidance

This report was prepared with due regard to the relevant European and Irish legislation, case law and guidance, including but not limited to: -

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna. *Official Journal of the European Communities* L 206/7-50.
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. *Official Journal of the European Union* L 20/7-25.
- European Communities (Birds and Natural Habitats) Regulations, 2011. *S.I. No. 77/2011* (as amended) (“the Habitats Regulations”).
- Planning and Development Act, 2000. *No. 30 of 2000* (as amended) (“the Planning and Development Acts”).
- Planning and Development Regulations, 2001. *S.I. No. 600/2001* (as amended) (“the Planning Regulations”).
- EC (2018). *Managing Natura 2000 sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC*. European Commission, Brussels.
- EC (2021a). *Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC*. C(2021) 6913. European Commission, Brussels.
- EC (2021b). *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive*. C(2021) 7301. European Commission, Brussels.
- DEHLG (2010a). *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Revised 11/02/2010*. Department of the Environment, Heritage and Local Government, Dublin.
- DEHLG (2010b). *Circular NPW 1/10 & PSSP 2/10. Dated 11/03/2010*. Department of the Environment, Heritage and Local Government, Dublin.
- NPWS (2012a). *Marine Natura Impact Statements in Irish Special Areas of Conservation. A Working Document. April 2012*. National Parks & Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.
- NPWS (2021). *Guidance on the Strict Protection of Certain Animal and Plant Species under the Habitats Directive in Ireland. National Parks & Wildlife Service Guidance Series 1*, Department of Housing, Local Government and Heritage, Dublin.
- Mullen, E., Marnell, F. and Nelson, B. (2021). *Strict Protection of Animal Species – Guidance for Public authorities on the Application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of a Public authority. National Parks & Wildlife Service Guidance Series 2*, Department of Housing, Local Government and Heritage, Dublin.
- OPR (2021). *Appropriate Assessment Screening for Development Management. OPR Practice Note PN01*. Office of the Planning Regulator, Dublin.
- *Applications for Approval for Local Authority Developments made to An Bord Pleanála under 177AE of the Planning and Development Act, 2000, as amended (Appropriate Assessment) – Guidelines for Local*

Authorities <<https://www.pleanala.ie/getmedia/0f385f48-7e84-43e3-b405-1201e490740a/Applications-for-approval-for-LA-Developments-S177AE-EN.pdf>>. An Bord Pleanála, Dublin.

- Case law, including *Waddenzee* (C-127/02), *Sweetman v. An Bord Pleanála* (C-258/11), *Kelly v. An Bord Pleanála* (IEHC 400), *Commission v. Germany* (C-142/16), *People Over Wind* (C-323/17), *Holohan v. An Bord Pleanála* (C-461/17), *Eoin Kelly v. An Bord Pleanála* (IEHC 84) and *Heather Hill* (IEHC 450).
- Sundseth, K. and Roth, P. (2014). *Article 6 of the Habitats Directive – Rulings of the European Court of Justice*. Ecosystems LTD (N2K Group), Brussels.

3.2. Desk Study

A desk study was carried out to collate information available on Natura 2000 sites in the vicinity of the proposed works. These areas were viewed using Google Earth, Google Maps³ and Bing Maps⁴ (last accessed 03/07/2023).

The National Parks and Wildlife Service (NPWS) and National Biodiversity Data Centre (NBDC) online databases were reviewed concerning European sites and their features of interest in the vicinity of the proposed project.

The Environmental Protection Agency (EPA) mapping⁵ system was used to identify any hydrological connection between the proposed project and European sites.

Locations and boundaries of all European sites within 15km of the proposed project were identified and reviewed using the NPWS online map viewer. Boundary shapefiles were also downloaded from this site to facilitate the preparation of project graphics.

Desktop information on relevant European sites were reviewed on the NPWS website, including the site synopsis for each SAC/SPA, the conservation objectives, the site boundaries as shown on the NPWS online map viewer, the standard Natura 2000 Data Form for the SAC/SPA which details conditions and threats of the sites, and published information and unpublished reports on the relevant European sites.

Relevant planning information for the surrounding area was reviewed using the planning enquiry systems of Cork County Council. Search criteria were implemented to determine whether such projects or plans would not be relevant to this study. Information on other plans and projects proposed or consented to in the vicinity of the proposed works was also reviewed. This information was used to identify potential in-combination effects from other plans and projects with the proposed works.

3.3. Site Visits

A site visit was carried out on 9th of June 2023 by Ecologist Caroline Shiel. The purpose of the site visit was to gather baseline data relating to the potential ecological constraints on the proposed works. This site visit focussed on identifying the suitability of the structure for bats and looked for the presence of any nesting birds. It also focused on identifying the presence or likely presence of aquatic and riparian Annex I habitats, as well as looking for species such as Otter (*Lutra lutra*) and determining if suitable habitat is present for Atlantic Salmon (*Salmo salar*), Sea Lamprey (*Petromyzon marinus*) and River/Brook Lamprey (*Lampetra fluviatilis* or *L. planeri*). The areas was also searched for signs of nesting Kingfisher (*Alcedo atthis*) and the presence of invasive alien plant species such as Japanese Knotweed (*Fallopia japonica*) or Himalayan Balsam (*Impatiens glandulifera*) was also noted. Any other notable other ecological features within the proposed works area and the Allow River and the Blackwater River were also recorded.

As part of the EIRSPAN bridge inspection and rehabilitation project a survey of Freshwater Pearl Mussel (*Margaritifera margaritifera*) was carried out by Pascal Sweeney of Sweeney Consultancy at Leader's Bridge and immediate environs on the 22nd of June 2023. There were no Freshwater Pearl Mussel recorded at Leader's Bridge. Leader's Bridge was also surveyed by Pascal Sweeney in 2019 and 2021; while it was surveyed by Aquatic Services Unit in 2018.

³ <https://www.google.ie/maps>

⁴ <http://www.bing.com/maps/>

⁵ <https://gis.epa.ie/EPAMaps/>

A number of Bat Surveys have also been undertaken at Leader's Bridge as part of the EIRSPAN project. In September 2019 the bridge was inspected by Brian Keeley Wildlife Survey. It was surveyed by Abbott Ecology in May 2018. The bridge had previously been noted as a roost by Bat Conservation Ireland.

3.4. Statement of Authority

This Natura Impact Statement was prepared by Sinéad Kinsella, while Paul O'Donoghue provided peer review and support.

Sinéad Kinsella is a Junior Ecologist at Atkins. Sinéad has a BSc in Applied Freshwater and Marine Biology. She has experience in preparing Appropriate Assessment Screening Reports, Natura Impact Statements and prepares Ecological Impact Assessment Reports and undertakes range of ecological surveys (e.g. mammal and bat surveys) for a range of proposed development sites.

Paul O'Donoghue is an Associate Director at Atkins. Paul holds a BSc (Hons) in Zoology, an MSc in Behavioural Ecology and a PhD in Avian Ecology and Genetics. Paul is a Chartered member of the Society for the Environment (CEnv) and a Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). Paul has over 18 years' experience in ecology; including extensive experience in the preparation of Habitat Directive Assessments/Natura Impact Statements, i.e. Appropriate Assessment under Article 6(3) of the Habitats Directive.

4. Existing Environment

4.1. Desktop Review

Leader's Bridge is located ca. 1.1km to the north of Banteer, County Cork, along the N72. The bridge is located over the Allow River. The Allow River joins with the Blackwater [Munster] River ca. 150m downstream of the proposed works on Leader's Bridge. The Allow River is located in Hydrometric Area no. 18, the Dalua_SC_020 subcatchment and the Blackwater [Munster] Catchment. The surrounding area is comprised of agricultural grassland (GA1)⁶, hedgerows (WL1) and treelines (WL1), the N72 road and houses and farm buildings in the wider vicinity (BL3). There is a plantation woodland close to Leader's Bridge which is primarily Scot's pine, but which also includes oak, sycamore and ash (north and south of the N72). To the northeast is an area of mixed woodland planted in 1998.

Leader's Bridge is located within the Blackwater River (Cork/ Waterford) SAC (site code: 002170). Banteer Ponds proposed Natural Heritage Area (pNHA) (site code: 001036) is located ca. 2.7km upstream of the point where the Allow River joins the Blackwater [Munster] River, ca.150m downstream of Leader's Bridge. There are no other Natural Heritage Area (NHA) or pNHA in the vicinity of the proposed works. Blackwater Valley (Killavullen) pNHA (site code: 001080) and Blackwater Valley (Ballincurrig Wood) (site code: 001793) are located over ca. 33km downstream of the proposed works along the Blackwater [Munster] River. There is a remote hydrological connection to The Blackwater Callows SPA (site code: 004094) which is located ca. 50km downstream of the proposed works.

Q-values, a biological water quality metric based on the composition of a river's macroinvertebrate community, detail the Allow River as being of 'Good' (Q4) ecological condition at the EPA sampling station 'Leader's Bridge' directly at the proposed works site in 2020 (ALLOW_070). The Allow River is categorized as 'Good' status under the Water Framework Directive (2016-2021).

The NBDC database shows records for white-clawed crayfish (*Austropotamobius pallipes*) in the Blackwater River [Munster] approximately 7.2km downstream of the proposed works on Leader's Bridge. The most recent of these records dates from EPA sampling in 2015. However, as noted an outbreak of crayfish plague has just been recorded in the River Blackwater.

Otter (*Lutra lutra*) were recorded at the proposed works site by the NBDC at Leader's Bridge; otter spraint - W3898 in 2013 (Source: NBDC; *Atlas of Mammals in Ireland 2010-2015*). Otter use watercourses as commuting routes and foraging areas, with their banks offering places of shelter and breeding.

The Allow River and the Blackwater [Munster] River are located in a *Margaritifera* Sensitive Area: Munster Blackwater (Catchments of SAC populations listed in S.I 296 of 2009).

Canadian Waterweed (*Elodea canadensis*), Indian Balsam (*Impatiens glandulifera*) and Japanese Knotweed (*Fallopia japonica*) are recorded within the 2km grid square (W39Z) (Source: NBDC).

Bats

When surveyed by Abbot Ecology in 2018 – the potential of the bridge for roosting bats was noted. However, due to the fast flowing river it could not be surveyed in full and a Phase 2 – dawn and dusk survey was recommended. No bats were recorded emerging from the bridge at dusk. Bat foraging activity and diversity was high during the dusk survey, with six bat species recorded. Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Daubenton's Bat (*Myotis daubentonii*) were the most active foraging at the bridge, and Leisler's Bat⁷ (*Nyctalus leisleri*) was also quite active. Single instances of Common Pipistrelle (*Pipistrellus pipistrellus*), Natterer's Bat (*Myotis nattereri*) and Brown Long-eared Bat (*Plecotus auratus*) were also recorded. *Myotis* sp. (thought to be Daubenton's Bat) could be seen flying across the field NE of the bridge, between the river and a woodland strip. It was thought that a roost in this direction might be possible to observe at dawn, but this did not prove to be the case. Dawn activity was notably less than dusk bat activity. Again, Soprano Pipistrelle and Daubenton's Bat were active. However, there was no further bat activity after 04:34 (c. 62 minutes before sunset), and no bats were observed to roost in

⁶ [Habitat - Fossitt Habitats — Foss Environmental Consulting](#)

⁷ Now also known as the Lesser Noctule.

the bridge. The eastern and western flood passes could be accessed and surveyed in full – no bats or sign of bats were recorded.

The bridge was also surveyed by Caroline Shiel in 2018 - 2 Daubenton's bats were recorded roosting between capping stones in the western flood pass.

Brian Keeley Wildlife Surveys surveyed Leader's Bridge in September 2019. Leaders Bridge Western Flood Pass - there were a very small number of bat droppings towards the centre of the Rathmore side of the bridge. There was no bat present on 19th September 2019. Leaders Bridge Eastern Flood Pass – a Natterer's bat was present within this arch in the Mallow side chamber in the second crevice in the roof of the chamber. This bat left during the night and did not return; probably due to the disturbance.

Pearl Mussel

Aquatic Services Unit surveyed Leader's Bridge in 2018. Results were as follows: -

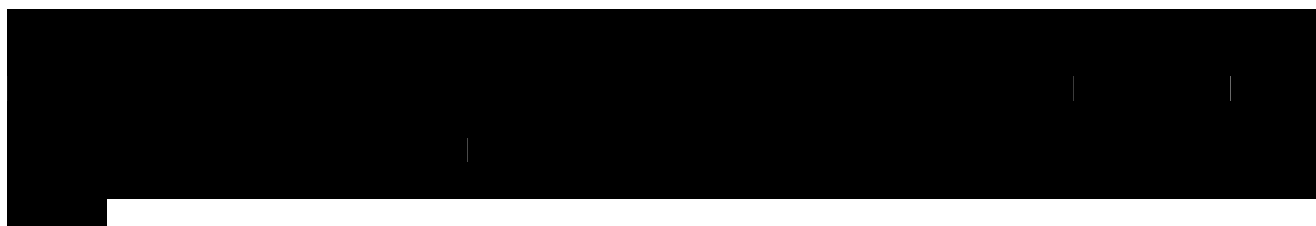
Large tributary of Blackwater River, Co. Cork. Surveyed (snorkel/wade) 50m US and DS of bridge. Average width / depth: 14m / 0.25m. Cobble with patches gravel & coarse sand. Abundant diatom, Phormidium and silt. Signs of impaired water quality. Good salmonid habitat. No FPM; patches of suitable habitat, but fine substrates quite limited.

There were no freshwater pearl mussels present in the 50m reaches upstream and downstream of Leader's Bridge.

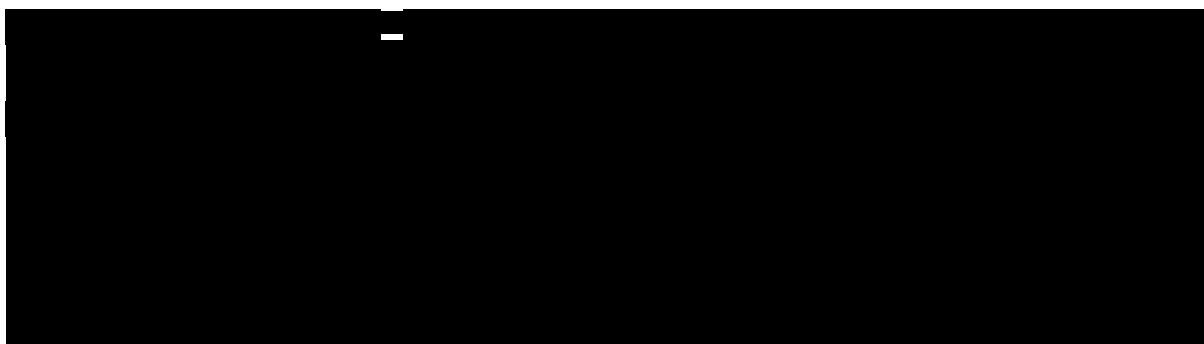
Sweeney Consultancy surveyed Leader's Bridge in 2019. Results were as follows: -

The physical habitat in the River Allow, both upstream and downstream of the bridge is suitable for freshwater pearl mussels, with a mixture of riffle and glide over a stony substratum that has suitable finer material for mussels to bed in, and varying depths and levels of shade. No freshwater pearl mussels were found. Despite the suitable physical habitat, freshwater pearl mussels have not been recorded in the lower parts of the River Allow. This is probably influence by unsatisfactory water quality regularly recorded by EPA downstream of Kanturk.

Sweeney Consultancy surveyed Leader's Bridge in 2021. Again, no pearl mussel were found. While the physical habitat in the River Allow, both upstream and downstream of the bridge was noted to be suitable for freshwater pearl mussels, the absence of mussels was thought to be due to unsatisfactory water quality.



The main channel of the Blackwater around Ballymaquirk Bridge was also surveyed for pearl mussel as part of the proposals to upgrade the N72 Ballymaquirk junction in December 2019 and July 2020 from upstream of the bridge to the confluence of the Allow with the Blackwater (ASU, Sept. 2020 in Moore Group Environmental Services, 2021).





Invasive Species

Indian balsam (*Impatiens glandulifera*) has been recorded from Leader's Bridge in 2006 (NBDC: W384989, River Biologists' Database, EPA). Japanese knotweed (*Fallopia (Reynoutia) japonica*) has been recorded from Leader's Bridge in 2009 (NBDC: W384989, River Biologists' Database, EPA). There are no recent TII records of invasive species at Leader's Bridge.

One specimen of Giant hogweed (*Heracleum mantegazzianum*) was recorded along the drainage ditch over 300m west of Leader's Bridge (ca. 538160 599030 in March 2019) (Moore Group, 2019). Japanese Knotweed was recorded at two locations; c. 40 downstream of Ballymaquirk Bridge (at ITM E538205 N598810) and on the downstream confluence of the River Allow and River Blackwater (ITM E538472 N598808) by Moore Group (2019). None of these locations are within the Leader's Bridge works area.

N72 Ballymaquirk Junction

Habitats and invasive species recorded during field work for the N72 Ballymaquirk Junction upgrade are illustrated in Figure 4.1 (extracted from Moore Group, 2021).

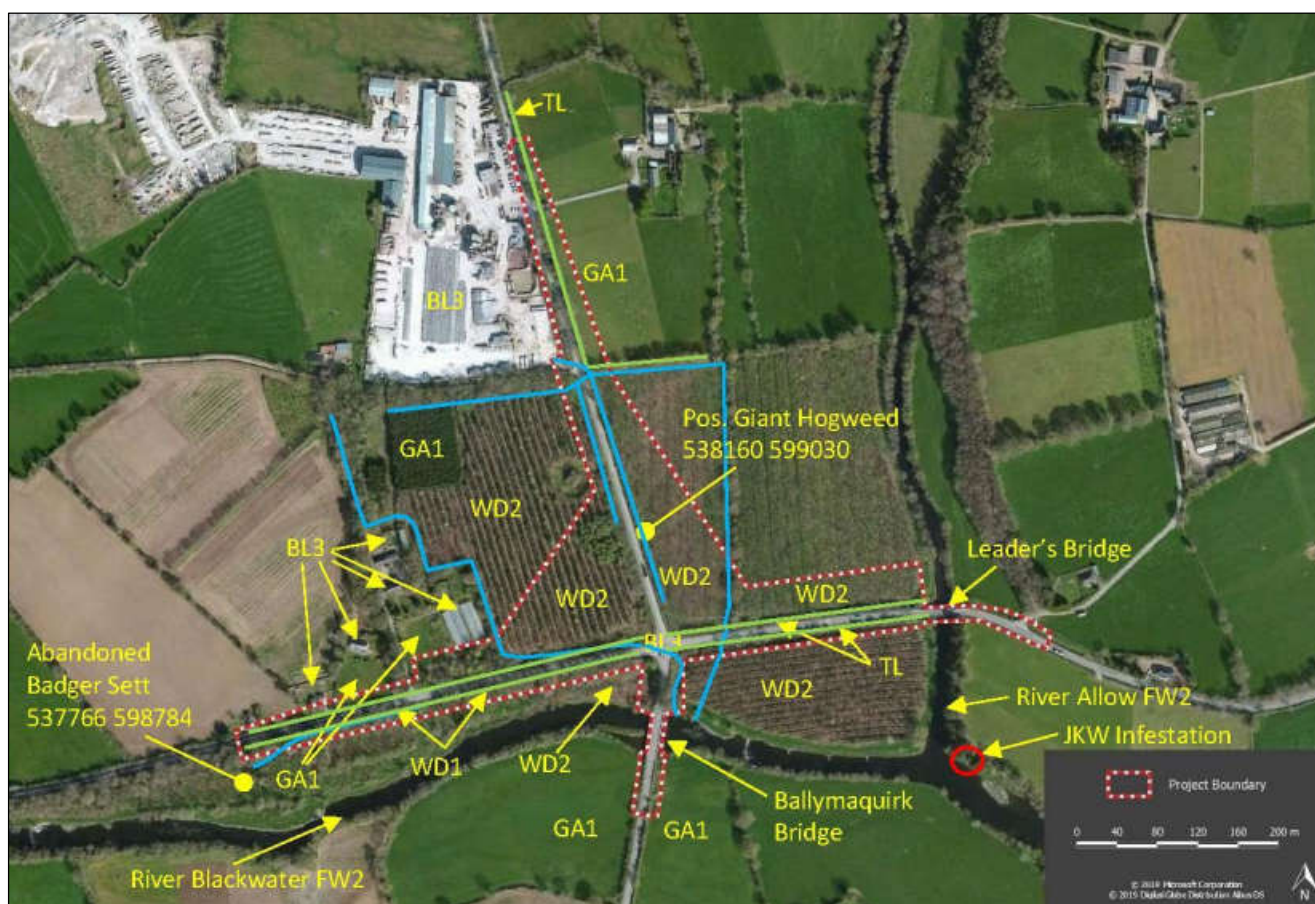


Figure 4.1 Habitats an invasive species in neighbouring N72 Ballymaquirk Junction upgrade.

4.2. Site Surveys (including bats)

A site survey was carried out by Caroline Shiel on the 9th of June 2023. As mentioned, Leader’s Bridge is a large structure which is classified in three discrete sections.

The reactive maintenance is only proposed for CC-N72-010.00, which is a masonry three arch structure. No works are proposed to Leader’s Bridge Eastern Flood Arch (CC-N72-009) or Leader’s Bridge Western Flood Pass (CC-N72-011).

The results of each section of Leader’s Bridge are included below.

Leader’s Bridge Eastern Flood Arch (CC-N72-009)

Structure ID	CC-N72-009
Bridge Name	Leader’s Bridge Eastern Flood Pass
County	Cork
Watercourse	Dry
No. of Spans	3 clapper spans
Date of survey	09/06/23
Species Recorded	Bat droppings
Bat Grade	3
Recommendations	No grout to be applied between capping stones of clapper

The Eastern Flood Pass is comprised of a 3-span stone clapper structure. There are suitable crevices for bats between each of the capping stones. No bats were recorded on the date of the survey, but a small number of bat droppings were recorded on the floor of the easternmost clapper.

No birds’ nests were recorded in the structure.

No invasive plant species were recorded in the vicinity.

Photos taken during the site survey of the Eastern Flood Pass are shown in Plates 4-1 to 4-9.



Plate 4.1 Downstream (southern) elevation of Eastern Flood Pass. The wall of Leader’s Bridge is visible on the left-hand side of the photo.



Plate 4.2 Small number of bat droppings on floor of easternmost span.



Plate 4.3 Small number of bat droppings on floor of easternmost span.



Plate 4.4 View under easternmost clapper.



Plate 4.5 Ideal crevices for bats between capping stones of clappers – these gaps are not to be pointed.



Plate 4.6 View under centre clapper.



Plate 4.7 View under westernmost clapper.



Plate 4.8 Upstream elevation showing stonework in good structural repair.



Plate 4.9 Eastern flood pass on left hand side showing distance to Leader's Bridge.

Leader's Bridge (CC-N72-010)

Structure ID	CC-N72-010
Bridge Name	Leader's Bridge
County	Cork
Watercourse	River Allow
No. of Spans	3
Date of survey	09/06/23
Species Recorded	Grey wagtail, Dipper, Otter
Bat Grade	1
Recommendations	N/A

Leader's Bridge is a large 3 span masonry bridge spanning the River Allow. It was possible to wade under the bridge due to the extreme low water conditions. The cut stone masonry of the arches is in good structural repair with no gaps between individual stones. There are no crevices suitable for bats under the arches.

There has been some movement of individual stone blocks at the base of the abutments and piers.

Two dipper nest boxes have been attached to the under surface of the westernmost arch. The nest in the plastic structure was active on the date of the survey in early June.

Otter spraints were recorded on a rock at the upstream face of the westernmost arch and otter prints were recorded in mud under the arch.

Photos taken during the site survey of Leader's Bridge are shown in Plates 4-10 to 4-25 below.

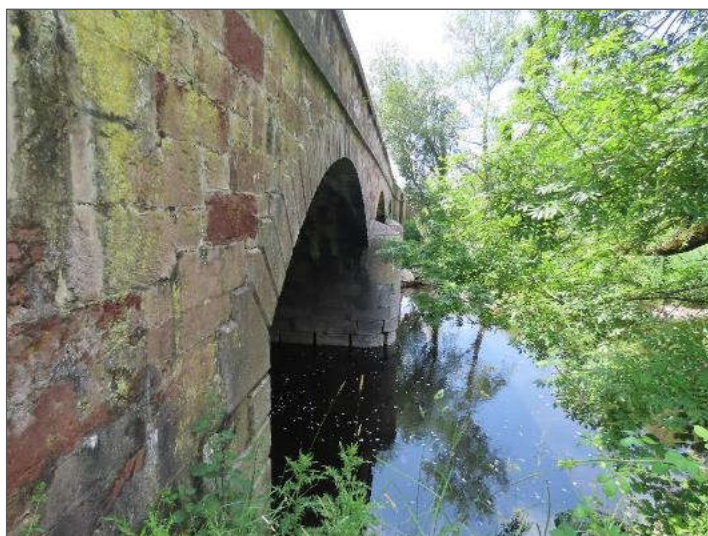


Plate 4.10 View across upstream face of Leader's Bridge showing movement of stone-work at base of abutment and pier of easternmost arch.



Plate 4.11 Close-up of base of abutment and upstream pier of easternmost arch.



Plate 4.12 Under surface of easternmost arch – no crevices between stones.



Plate 4.13 Stonework at base of abutment of centre arch.



Plate 4.14 Stonework of downstream pier between easternmost and centre arch, no open crevices for bats.



Plate 4.15 Void above downstream pier. A grey wagtail was recorded flying out from this void in the downstream (southern) bridge wall.



Plate 4.16 Close-up of movement of stones at base of abutment and pier of centre arch.



Plate 4.17 Westernmost arch – large rocks at upstream side of arch.



Plate 4.18 Otter spraints on rocks at upstream face of westernmost arch.



Plate 4.19 View across upstream face from western side of river.



Plate 4.20 Tree stump under westernmost arch with two dipper nest boxes mounted on under surface of arch. The nest in black plastic box was active.



Plate 4.21 Active dipper's nest in black plastic pipe nest box.



Plate 4.22 Large number of juvenile trout in shallows.



Plate 4.23 Mud bank at downstream face of western arch.



Plate 4.24 Otter prints in mud.

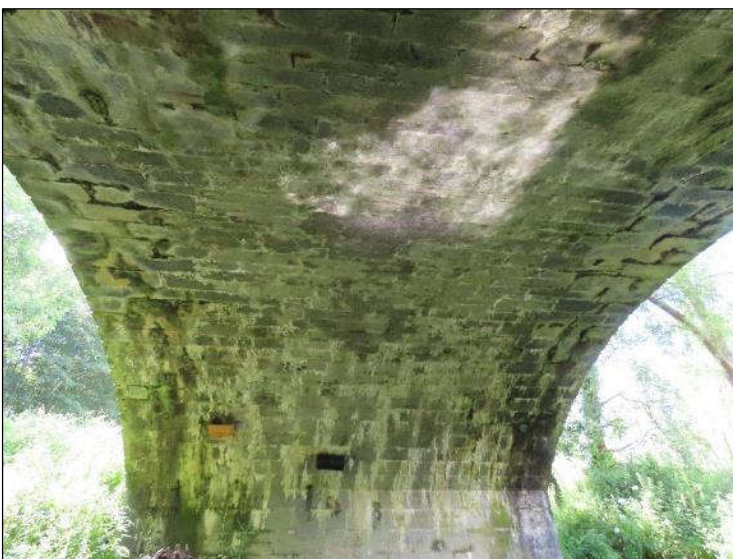


Plate 4.25 Stonework under western arch – no gaps between stones.

Leader's Bridge Western Flood Pass (CC-N72-011)

Structure ID	CC-N72-011
Bridge Name	Leader's Bridge Western Flood Pass
County	Cork
Watercourse	Dry
No. of Spans	3
Date of survey	09/06/23
Species Recorded	Bat droppings
Bat Grade	3
Recommendations	Retain gaps between capping stones of roof of clapper

Leader's Bridge Western Flood Pass is situated on the western bank of the River Allow to the west of Leader's Bridge. The structure consists of 3 narrow clapper spans. This structure was surveyed previously (2018) – two Daubenton's bats were recorded roosting between the capping stones. This gap was previously marked with red paint for retention for bats. No bats were recorded roosting in this position on the date of the current survey in 2023.

Photos taken during the site survey of the Western Flood Pass are shown in Plates 4-26 to 4-30 below.



Plate 4.26 Downstream face of western flood pass.



Plate 4.27 Upstream face of Western Flood Pass.

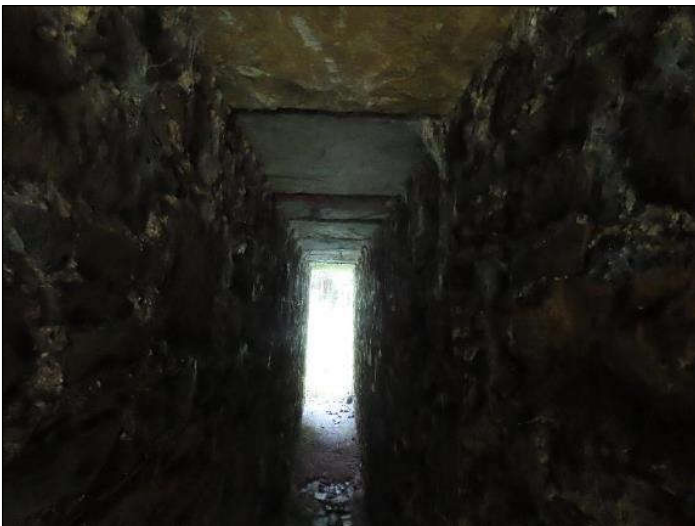


Plate 4.28 View under centre span showing gaps suitable for bats between capping stones.



Plate 4.29 Gap between capping stones of centre span marked previously for retention for bats.

[Two Daubenton's bats were recorded previously roosting in this crevice. No bats were present on the date of the present survey. However, relatively fresh droppings were recorded on the floor of the culvert directly underneath the marked crevice].



Plate 4.30 Bat droppings recorded directly beneath marked crevice.

[Leader's Bridge Walls](#)



Plate 4.31 Upstream elevation of Leader's Bridge.



Plate 4.32 Western flood pass showing proximity of road widening works.



Plate 4.33 Wall plaque on parapet wall of Leader's Bridge.



Plate 4.34 View looking west showing proximity of road widening works to Leader's Bridge and especially the Western Flood Pass.

4.3. Freshwater Pearl Mussel Surveys

A survey of Freshwater Pearl Mussel (*Margaritifera margaritifera*) was conducted by Pascal Sweeney of Sweeney Consultancy to survey the bridge for Freshwater Pearl Mussel on the 22nd of June 2023. There were no Freshwater Pearl Mussel recorded at Leader's Bridge. A previous Survey of Freshwater Pearl Mussels (*Margaritifera margaritifera*) at 9 bridge locations in Munster was carried out by Sweeney Consultancy on the 24th of July 2019 and in 2021, which included Leader's Bridge. Both of these reports concluded that there were no Freshwater Pearl Mussel at the bridge.

The reports stated that the physical habitat in the River Allow, both upstream and downstream of the bridge is suitable for freshwater pearl mussels, with a mixture of riffle and glide over a stony substratum that has suitable finer material for mussels to bed in, and varying depths and levels of shade.

Despite the suitable physical habitat, freshwater pearl mussels have not been recorded in the lower parts of the River Allow. This is probably influenced by unsatisfactory water quality regularly recorded by EPA downstream of Kanturk.

5. Screening for Appropriate Assessment

5.1. Zone of Influence

The “*Zone of Influence*” of a plan or project is the area which may experience ecological effects as a result of its implementation, including any ancillary activities. The various impacts of a plan or project will each have their own characteristics, e.g. nature, extent, magnitude, duration etc. Accordingly, the area subject to each impact (“zone of impact”) will vary depending on characteristics of the impact and the presence of pathways for its propagation. Ecological features within or connected to one or more zones of impact could, depending on their sensitivities, be affected by the plan or project under consideration. The area containing such features may be regarded as the Zone of Influence. As such, in establishing the Zone of Influence for a plan or project, regard must be had to the characteristics of its potential impacts, potential pathways for impacts and the sensitivities of ecological features in the receiving environment.

In its guidance on selecting Natura 2000 sites to include in AA, *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities* (DEHLG, 2010a) recommends inclusion of sites in the following three categories: -

- Any Natura 2000 sites within or adjacent to the plan or project area,

Any Natura 2000 sites within the Zone of Influence of the plan or project (to be established on a case-by-case basis for projects, having regard to the nature, scale and location of the project, the sensitivities of the ecological receptors and the potential for in-combination effects), and

- Following the precautionary principle, any other Natura 2000 sites for which the possibility of significant effects cannot be excluded, e.g. for a project with hydrological impacts, it may be necessary to check the full extent of the catchment for Natura 2000 sites with water-dependent qualifying interests.

In addition, *Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC* (EC, 2021a) recommends consideration of Natura 2000 sites hosting fauna which could move to the plan or project area or its zone(s) of impact, and the potential for the plan or project to sever ecological connectivity within or between Natura 2000 sites. *Appropriate Assessment Screening for Development Management* (OPR, 2021) emphasises the importance of employing the source-pathway-receptor model (rather than arbitrary distances such as 15km) when selecting Natura 2000 sites for inclusion in AA.

Based on the above considerations, the Zone of Influence for the proposed works was defined as the combination of the following zones of impact: -

- For direct impacts, all areas within and immediately adjoining the works area (red-line boundary).
- For temporary disturbance to birds and other fauna, as well as effects associated with the spread of invasive alien species, all areas within a precautionary buffer of 500m from the works area.
- For water quality impacts, the Allow River within and downstream of the works area, as well as the Blackwater [River] Munster, which the Allow River conjoins with.
- For indirect effects, all other areas with potential ecological connectivity to the above zones of impact, i.e. the Blackwater [Munster] River catchment.

Publicly available spatial data for rivers, transitional and coastal waterbodies, and catchment boundaries (*EPA Maps*) were used in conjunction with aerial imagery to identify the footprint of the works, pathways and zones of impact for disturbance and water quality impacts from the proposed works, and potential ecological connections to the wider landscape. These were then mapped in relation to Natura 2000 sites (see Figures 5.1 and 5.2).

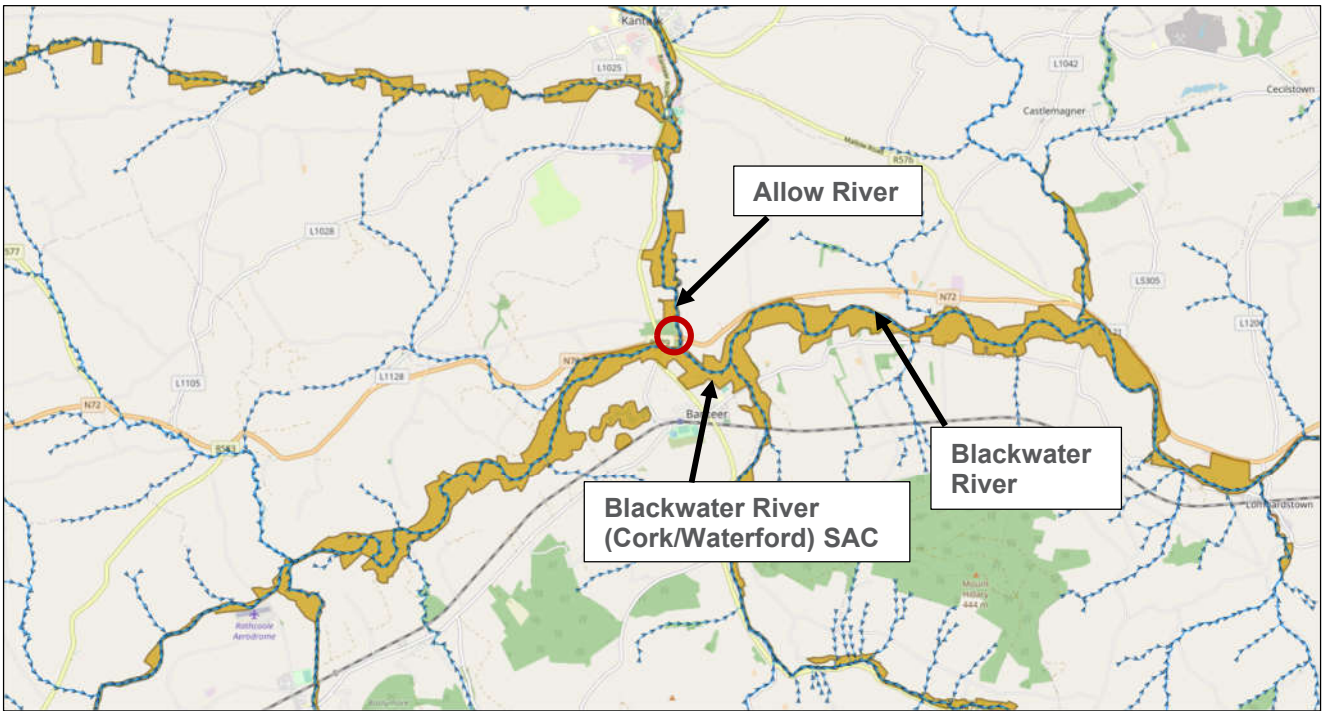


Figure 5.1 Location of the proposed works site (red circle) in relation to watercourses and SACs (orange area) (Source: EPA Maps).

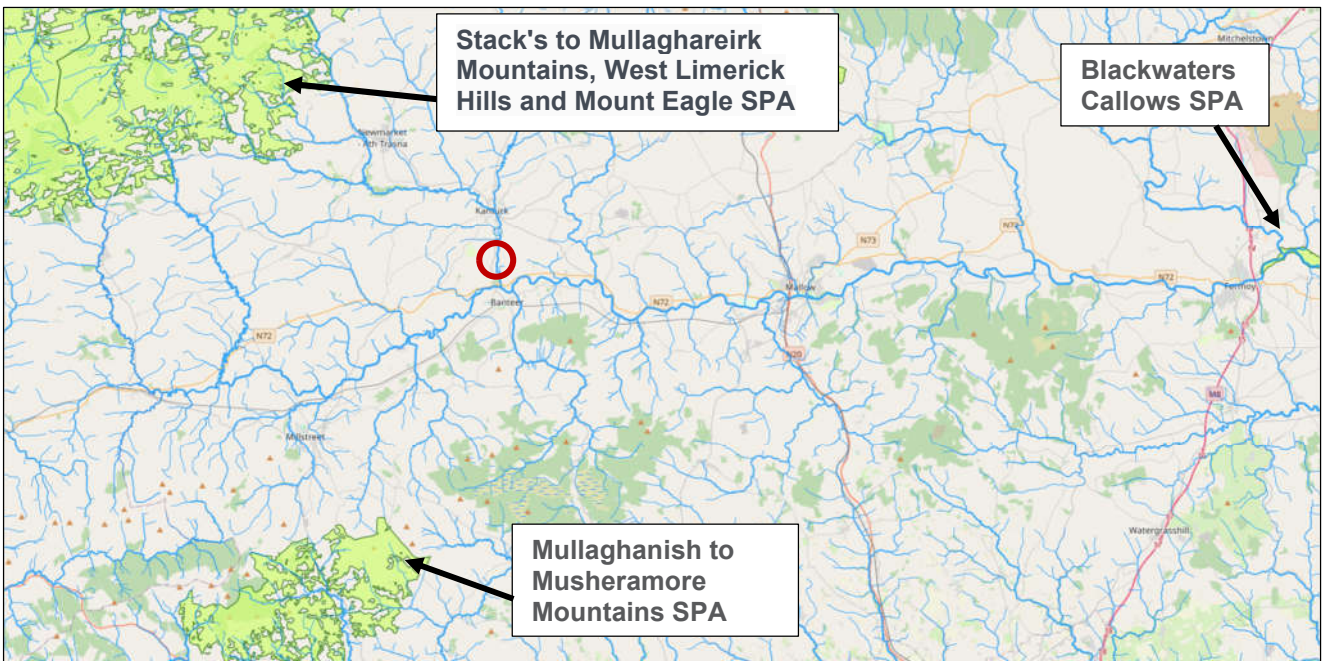


Figure 5.2 Location of the proposed works site (red circle) in relation to watercourses and SPAs (yellow area) (Source: EPA Maps).

5.2. Identification of Sites

Direct Impacts

Direct impacts include those such as habitat loss and fragmentation which occur as a direct result of works. Such impacts are limited to the proposed works site and the immediate vicinity. The proposed works are located within the the Blackwater River (Cork/ Waterford) SAC (site code: 002170). Therefore, there will potentially be an impact on this Natura 2000 site in the absence of mitigation measures. This site is considered further below in more detail.

Disturbance and Invasive Alien Species

Disturbance impacts include noise, visual and other forms of disturbance to animal species. The extent of such impacts is highly dependent on their magnitude and the sensitivity of the receptors. In the case of the proposed works, a precautionary distance of 500m from the works was used. Evidence of otter were recorded during the site survey. Given that the proposed works are located within the Blackwater River (Cork/ Waterford) SAC, this site is included within the scope of this assessment.

Given the uncertainty and complexity of effects relating to the spread of invasive alien species, it is not possible to define a zone of impact. However, while there were historic records, no invasive plant species were recorded during the site survey in the vicinity of the proposed works site. Given that in-stream works will occur during the proposed works, standard biosecurity measures will be incorporated into the works design to minimise the risk from Crayfish plague (*Aphanomyces astaci*).

Water Quality Impacts

Water quality impacts include pollution of surface waters and groundwater by sediment, cementitious materials (e.g. concrete), hydrocarbons (e.g. diesel, hydraulic oils and lubricating oils) and other deleterious matter arising from the proposed works. In the case of the proposed works, these include fine sediment from excavations and earthworks, fuels and other hydrocarbons from vehicles, plant and machinery, concrete, and waste from on-site welfare facilities.

The zone of impact includes the Allow River and the Blackwater [Munster] River within and downstream of the works area. One Natura 2000 site occurs within this zone of impact, namely the Blackwater (Cork/Waterford) SAC. This site is designated for a range of aquatic habitats and species which are sensitive to water quality impacts. Therefore, this site is included within the scope of this assessment.

Indirect Effects

The additional Natura 2000 sites within the potential zone of impact for indirect impacts within the Blackwater [Munster] Catchment (see Table 5.1 & 5.2) are the Ballyhoura Mountains SAC⁸ (site code: 002036), Killarney National Park, Macgillycuddy's Reeks And Caragh River Catchment SAC⁹ (site code: 000365). Blackwaters Callows SPA¹⁰ (site code: 004094), Kilcolman Bog SPA¹¹ (site code: 004095), Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA¹² (site code: 004161) and Mullaghanish to Musheramore Mountains SPA¹³ (004162).

Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is located ca. 18.3km upstream of the proposed works site. The sole qualifying interest of this SPA is Hen Harrier (*Circus cyaneus*) [A082]. There

⁸ NPWS (2016). *Conservation Objectives: Ballyhoura Mountains SAC 002036. Version 1.* National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

⁹ NPWS (2017). *Conservation Objectives: Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365. Version 1.* National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

¹⁰ NPWS (2022). *Conservation objectives for Blackwater Callows SPA [004094]. First Order Site specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

¹¹ NPWS (2022). *Conservation objectives for Kilcolman Bog SPA [004095]. First Order Site specific Conservation Objectives Version 1.0.* Department of Housing, Local Government and Heritage.

¹² NPWS (2022). *Conservation Objectives: Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA 004161. Version 1.* National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

¹³ NPWS (2022). *Conservation Objectives: Mullaghanish to Musheramore Mountains SPA 004162. Version 1.* National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

is no suitable habitat for Hen harrier within the proposed works site or within the zone of impact of the proposed works. Hen Harrier is also the sole qualifying interest of Mullaghanish to Musheramore Mountains SPA.

The Blackwater Callows SPA is located ca. 51km downstream of the proposed works (ca. 44km straight line distance). Blackwater Estuary SPA is located ca. 73km downstream of the proposed works and is not considered further. There are no direct hydrological connections to the remainder of these Natura 2000 sites.

These sites are discussed in Table 5.1 (SACs) and Table 5.2 (SPAs) with the reasons why they are Screened In / Out discussed for each Natura 2000 site in turn.

Summary

Based on the summary presented in Table 5.1 and Table 5.2, the following Natura 2000 site is Screened In and is considered further: - Blackwater (Cork/ Waterford) SAC (site code: 002170).

Table 5.1 SACs within potential Zol of the proposed project.

Site	Distance and direction of site from proposed works	Features of Interest	Screening comment
Blackwater (Cork/Waterford) SAC	Within	<ul style="list-style-type: none"> • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Perennial vegetation of stony banks [1220] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] • Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260] • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] • 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] • <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] • <i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092] • <i>Petromyzon marinus</i> (Sea Lamprey) [1095] • <i>Lampetra planeri</i> (Brook Lamprey) [1096] • <i>Lampetra fluviatilis</i> (River Lamprey) [1099] • <i>Alosa fallax fallax</i> (Twaiite Shad) [1103] • <i>Salmo salar</i> (Salmon) [1106] • <i>Lutra lutra</i> (Otter) [1355] • <i>Trichomanes speciosum</i> (Killarney Fern) [1421] 	<p>Leader's Bridge is located within the Blackwater (Cork/Waterford) SAC.</p> <p>This site is therefore Screened In and is considered in detail below.</p>
Ballyhoura Mountains SAC	27.5km	<ul style="list-style-type: none"> • Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] • European dry heaths [4030] • Blanket bogs (* if active bog) [7130] 	<p>The Ballyhoura Mountains are located 27.5km to the northeast of Leader's Bridge.</p> <p>There is no spatial overlap between Leader's Bridge and the habitats for which the SAC is designated.</p> <p>The SAC is located to the northeast of the Awbeg, a tributary of the River Blackwater, whose confluence is downstream, of Leader's Bridge. There is therefore no hydrological connectivity between the proposed works and the Ballyhoura Mountains SAC.</p>

Site	Distance and direction of site from proposed works	Features of Interest	Screening comment
			<p>The distance is such that any activities at Leader's Bridge, nor any emissions, such as e.g. dust, would not impact Ballyhoura Mountains SAC, the habitats for which it is designated or any associated species it supports.</p> <p>Screened Out</p>
Killarney National Park, Macgillycuddy's Reeks And Caragh River Catchment SAC	19km	<ul style="list-style-type: none"> • Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110] • Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation [3260] • Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] • European dry heaths [4030] • Alpine and Boreal heaths [4060] • <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] • Calaminarian grasslands of the Violetalia calaminariae [6130] • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] • Blanket bogs (* if active bog) [7130] • Depressions on peat substrates of the Rhynchosporion [7150] • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0] • <i>Taxus baccata</i> woods of the British Isles [91J0] • <i>Geomalacus maculosus</i> (Kerry Slug) [1024] • <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] • <i>Euphydryas aurinia</i> (Marsh Fritillary) [1065] • <i>Petromyzon marinus</i> (Sea Lamprey) [1095] • <i>Lampetra planeri</i> (Brook Lamprey) [1096] • <i>Lampetra fluviatilis</i> (River Lamprey) [1099] 	<p>Killarney National Park, Macgillycuddy's Reeks And Caragh River Catchment SAC is an extensive site which is designated for a diverse range of habitats and species.</p> <p>At its nearest it is located 19km from Leader's Bridge, just to the west of Millstreet.</p> <p>The Owenagloo a tributary of the Blackwater rises in Killarney National Park, Macgillycuddy's Reeks And Caragh River Catchment SAC to the southwest of Millstreet – it flows into the main channel of the Blackwater which in turn passes under Leader's Bridge. However, any such sections within Killarney National Park, Macgillycuddy's Reeks And Caragh River Catchment SAC are upstream of Leader's Bridge and will not be affected by proposed works.</p> <p>There is no spatial overlap between Leader's Bridge and the habitats for which the SAC is designated.</p> <p>Due to the distance from the SAC none of the species for which is designated would be disturbed by proposed works at Leader's Bridge.</p> <p>While it shares Water courses of plain to montane levels, pearl mussel, lamprey, Atlantic salmon and Otter as qualifying interests with the Blackwater River SAC these will be addressed as part of the consideration of the Blackwater River SAC. Where these habitat or species occur in other watercourses within Killarney National Park, Macgillycuddy's Reeks And Caragh River Catchment SAC, these are not hydrologically connected to the works at Leader's Bridge and would not be impacted by proposed works.</p> <p>There are no records of species such as Kerry slug or Marsh fritillary from the environs of Leader's Bridge.</p>

Site	Distance and direction of site from proposed works	Features of Interest	Screening comment
		<ul style="list-style-type: none"> • <i>Salmo salar</i> (Salmon) [1106] • <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303] • <i>Lutra lutra</i> (Otter) [1355] • <i>Trichomanes speciosum</i> (Killarney Fern) [1421] • <i>Najas flexilis</i> (Slender Naiad) [1833] • <i>Alosa fallax killarnensis</i> (Killarney Shad) [5046] 	Screened Out

Table 5.2 SPAs within potential Zol of the proposed project.

Site	Distance and direction of site from proposed works	Features of Interest	Screening comment
Blackwaters Callows SPA	44.1km (51km along the watercourse)	<ul style="list-style-type: none"> Whooper Swan (<i>Cygnus cygnus</i>) [A038] Wigeon (<i>Anas penelope</i>) [A050] Teal (<i>Anas crecca</i>) [A052] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Wetland and Waterbirds [A999] 	<p>The Blackwater Callows is a section of the River Blackwater between Fermoy and Lismore where grasslands adjoining the river are seasonally flooded. These flooded area and adjoining improved grassland are used by a number of waterfowl species.</p> <p>Similar habitat does not occur at Leader's Bridge. While there is open grassland to the SE this is bordered by the road and is not known to be used by e.g. Whooper Swan.</p> <p>Due to the distance from the SPA none of the species for which it is designated would be disturbed by proposed works at Leader's Bridge.</p> <p>Screened Out</p>
Kilcolman Bog SPA	22.7km	<ul style="list-style-type: none"> Whooper Swan (<i>Cygnus cygnus</i>) [A038] Teal (<i>Anas crecca</i>) [A052] Shoveler (<i>Anas clypeata</i>) [A056] Wetland and Waterbirds [A999] 	<p>Kilcolman Bog SPA is a fen habitat located to the northeast of Buttevant in the catchment of the Awbeg River.</p> <p>While Whoopers Swan are known to fly out to neighbouring agricultural grassland, swans are not known from the environs of Leader's Bridge.</p> <p>The wetland habitats favoured by Teal and Shoveler, two species of dabbling duck, are not located in the environs of Leader's Bridge.</p> <p>Due to the distance from the SPA none of the species for which it is designated would be disturbed by proposed works at Leader's Bridge.</p> <p>Screened Out</p>
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	13.7km	<ul style="list-style-type: none"> Hen Harrier (<i>Circus cyaneus</i>) [A082] 	<p>Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is designated for breeding Hen Harrier. During the breeding season, in addition to the pre-thicket forestry, they forage over heath bog, low intensively farmed grassland with well-established hedgerows and areas of scrub. They actively avoid areas of post-thicket forestry</p>

Site	Distance and direction of site from proposed works	Features of Interest	Screening comment
			<p>or woodland with a closed canopy as it drives them to fly higher, with less potential for catching prey.</p> <p>During the non-breeding season, which can be broadly defined as mid-August to mid-March, Hen Harriers may disperse from the breeding sites. In Ireland the majority of roosts are located in reedbeds, heather/bog and rank/rough grassland but also fen, bracken gorse and saltmarsh (NPWS 2015). Arroyo in a review of Hen Harrier in SPAs – found that birds can forage up to 9km from the nest. The environs of Leader’s Bridge is outside the normal foraging range for Hen harrier breeding in the SPA, nor does it support suitable foraging areas.</p> <p>Due to the distance from the SPA none of the species for which it is designated would be disturbed by proposed works at Leader’s Bridge.</p> <p>Screened Out.</p>
Mullaghanish to Musheramore Mountains SPA	15km	<ul style="list-style-type: none"> Hen Harrier (<i>Circus cyaneus</i>) [A082] 	<p>Mullaghanish to Musheramore Mountains SPA is designated for breeding Hen Harrier. During the breeding season, in addition to the pre-thicket forestry, they forage over heath bog, low intensively farmed grassland with well-established hedgerows and areas of scrub. They actively avoid areas of post-thicket forestry or woodland with a closed canopy as it drives them to fly higher, with less potential for catching prey.</p> <p>During the non-breeding season, which can be broadly defined as mid-August to mid-March, Hen Harriers may disperse from the breeding sites. In Ireland the majority of roosts are located in reedbeds, heather/bog and rank/rough grassland but also fen, bracken</p>

Site	Distance and direction of site from proposed works	Features of Interest	Screening comment
			<p>gorse and saltmarsh (Ruddock et al. 2016¹⁴). Arroyo et al. 2014¹⁵ in a review of Hen Harrier in SPAs – found that birds can forage up to 9km from the nest. The environs of Leader’s Bridge is outside the normal foraging range for Hen harrier breeding in the SPA, nor does it support suitable foraging areas.</p> <p>Due to the distance from the SPA none of the species for which it is designated would be disturbed by proposed works at Leader’s Bridge.</p> <p>Screened Out.</p>

¹⁴ Ruddock, M., Mee, A., Lusby, J., Nagle, A., O’Neill, S. & O’Toole, L. (2016). The 2015 National Survey of Breeding Hen Harrier in Ireland. *Irish Wildlife Manuals*, No. 93. National Parks and Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ireland.

¹⁵ Arroyo *et al.* 2014. Ranging behaviour of Hen Harriers breeding in Special Protection Areas in Scotland. *Bird Study* (2014) 61, 48–55.

5.3. Site Descriptions

5.3.1. Blackwater River (Cork/Waterford) SAC

Overview

The following description is taken from the Site Synopsis for the site (NPWS, 2016).

The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. In times of heavy rainfall, the levels can fluctuate widely by more than 12 feet on the gauge at Careysville. The peaty nature of the terrain in the upper reaches and of some of the tributaries gives the water a pronounced dark colour. The site consists of the freshwater stretches of the River Blackwater as far upstream as Ballydesmond, the tidal stretches as far as Youghal Harbour and many tributaries, the larger of which include the Licky, Bride, Flesk, Chimneyfield, Finisk, Araglin, Awbeg (Buttevant), Clyda, Glen, Allow, Dalua, Brogeen, Rathcool, Finnow, Owentaraglin and Awnaskirtaun. The portions of the Blackwater and its tributaries that fall within this SAC flow through the counties of Kerry, Cork, Limerick, Tipperary and Waterford. Nearby towns include Rathmore, Millstreet, Kanturk, Banteer, Mallow, Buttevant, Doneraile, Castletownroche, Fermoy, Ballyduff, Rathcormac, Tallow, Lismore, Cappoquin and Youghal.

The Blackwater rises in boggy land in east Kerry, where Namurian grits and shales build the low heather-covered plateaux. Near Kanturk the plateaux enclose a basin of productive Coal Measures. On leaving the Namurian rocks the Blackwater turns eastwards along the northern slopes of the Boggeragh Mountains before entering the narrow limestone strike vale at Mallow. The valley deepens as first the Nagles Mountains and then the Knockmealdowns impinge upon it. Interesting geological features along this stretch of the Blackwater Valley include limestone cliffs and caves near the villages and small towns of Killavullen and Ballyhooly; the Killavullen caves contain fossil material from the end of the glacial period. The associated basic soils in this area support the growth of plant communities which are rare in Cork because in general the county's rocks are acidic. At Cappoquin the river suddenly turns south and cuts through high ridges of Old Red Sandstone. The Araglin valley is underlain by sandstone, with limestone occurring in the lower reaches near Fermoy.

Qualifying Interests and Conservation Objectives

The Blackwater River (Cork/ Waterford) SAC was selected for the following qualifying interests: -

- Estuaries [1130]
- Mudflats and sandflats not covered by seawater at low tide [1140]
- Perennial vegetation of stony banks [1220]
- Salicornia and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation [3260]
- Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]
- *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]
- *Austropotamobius pallipes* (White-clawed Crayfish) [1092]
- *Petromyzon marinus* (Sea Lamprey) [1095]

- *Lampetra planeri* (Brook Lamprey) [1096]
- *Lampetra fluviatilis* (River Lamprey) [1099]
- *Alosa fallax fallax* (Twaite Shad) [1103]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]
- *Trichomanes speciosum* (Killarney Fern) [1421]

The conservation objectives of the Blackwater River (Cork/ Waterford) SAC are as follows (NPWS, 2012): -

- To restore the favourable conservation condition of the Freshwater Pearl Mussel, Twaite Shad, Atlantic salt meadows, Otter, Old sessile oak woods with Ilex and Blechnum in the British Isles, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*).
- To maintain the favourable conservation condition of White-clawed Crayfish, Sea Lamprey, Brook Lamprey, River Lamprey, Atlantic Salmon, Estuaries, Mudflats and sandflats not covered by seawater at low tide, Perennial vegetation of stony banks, Salicornia and other annuals colonizing mud and sand, Mediterranean salt meadows, Killarney Fern, Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation in the Blackwater River (Cork/Waterford) SAC.
- The status of *Taxus baccata* woods of the British Isles as a qualifying Annex I habitat for the Blackwater River (Cork/Waterford) SAC is currently under review. The outcome of this review will determine whether a site-specific conservation objective is set for this habitat.

Threats, Pressures and Activities

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

Table 5.3 Threats, pressures and activities with negative impacts on the Blackwater River (Cork/Waterford) SAC.

Rank	Threat, pressure or activity (code)	Threat, pressure or activity (description)	Inside, outside or both
Low	G01.01	nautical sports	Inside
Low	J02.01	Landfill, land reclamation and drying out, general	Inside
Medium	E01	Urbanised areas, human habitation	Outside
Low	C01.01	Sand and gravel extraction	Outside
Medium	E02	Industrial or commercial areas	Outside
Medium	J02.01	Landfill, land reclamation and drying out, general	Outside
High	A04	grazing	Inside
Medium	B	Sylviculture, forestry	Outside
Low	K01.01	Erosion	Inside
Low	D01.02	roads, motorways	Inside
Low	B	Sylviculture, forestry	Inside
Low	E03.01	disposal of household / recreational facility waste	Inside
High	A08	Fertilisation	Outside
High	A03	mowing / cutting of grassland	Inside
High	A08	Fertilisation	Inside
Low	G02	Sport and leisure structures	Outside
High	A04	grazing	Outside
Low	D01.04	railway lines, TGV	Inside
Medium	I01	invasive non-native species	Outside
Medium	I01	invasive non-native species	Inside

NPWS (2016) and Eionet (2022).

5.4. Concluding Statement

The proposed works are within Blackwater River (Cork/Waterford) SAC.

This screening report for Appropriate Assessment is based on the best available scientific information. It is concluded that potential negative impacts to Blackwater River (Cork/Waterford) SAC cannot be fully discounted without the use of appropriately designed environmental protection / mitigation measures. Thus, it is recommended that the proposed project to proceed to Stage 2 of the Appropriate Assessment process.

6. Assessment of Adverse Effects

This section identifies potential impacts on the qualifying interests of the Natura 2000 sites concerned following the source-pathway-receptor model, i.e. by identifying the impacts from the proposed works (sources) to which the qualifying interests (receptors) are sensitive and establishing whether there are pathways for those impacts.

6.1. Identification of potential impacts

6.1.1. Blackwater River (Munster) SAC

The proposed works are described in full in Section 1.1 of the Report. As noted, works will be of short duration – ca. 4 weeks. It is not clear at this time when work will occur, but it likely to be autumn 2023 or spring 2024.

There will be no permanent loss of habitat within the works area. There will be no excavation works.

The key concern relates to water quality and the disposal of any waters from within the works area that might be heavily silted. This is returned to under Mitigation below.

The SAC is also designated for Otter. While no direct impact to a holting site is predicted, there is potential for the disturbance of Otter during proposed construction works. This is returned to under Mitigation below.

As crayfish plague has been recorded in the River Blackwater recently adherence to strict biosecurity measures is also critical.

Table 6.1 Identification of potential impacts on the Blackwater River (Munster) SAC.

Qualifying interest	Identification of potential impacts	Potential impact
Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Perennial vegetation of stony banks [1220] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	There is no example of these habitats within the likely extent of any water quality impacts from the proposed works on Leader's Bridge. The nearest examples of these habitats within the Zone of Influence occur in Youghal ca. 95km downstream via the Blackwater River. However, there are no reasonable pathways for impacts from the proposed works to these habitats. Therefore, the possibility of any impacts on any of these habitats can be ruled out at this stage.	No
Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260]	For the purpose of this NIS, all rivers and streams in the SAC are assumed to represent this habitat type. The nearest example within the SAC is the Blackwater River itself, which is ca. 150m downstream of the Leader's Bridge. As the potential for negative impacts cannot be discounted in the absence of appropriate mitigation measures being implemented, the possibility of any impacts cannot be ruled out at this stage.	Yes
Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	There are no examples of this woodland type connected to the works area. Therefore, the possibility of any impacts can be ruled out at this stage.	No

Qualifying interest	Identification of potential impacts	Potential impact
	[There is a plantation woodland close to Leader's Bridge which is primarily Scot's pine, but which also includes oak, sycamore and ash (north and south of the N72. To the northeast is an area of mixed woodland planted in 1998].	
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]	There is no exact example of this Annex I priority habitat. Some examples may be present further downstream along the Blackwater River, but any such examples are small in size and located outside the SAC. Therefore, the possibility of any impacts can be ruled out at this stage	No
<i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]	<p>[REDACTED]</p> <p>No Freshwater Pearl Mussel were recorded at the bridge, within the Allow River during recent surveys, including most recently on 2023 (see Section 4.3).</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>Due to there being instream works, the possibility of any impacts cannot be entirely ruled out at this stage.</p>	Yes
<i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092]	<p>The NBDC database shows records for white-clawed crayfish (<i>Austropotamobius pallipes</i>) in the Blackwater River approximately 7.2km downstream of the proposed works on Leader's Bridge. The most recent of these records dates from EPA sampling in 2015.</p> <p>It should be noted that there has been a recent outbreak of crayfish plague in the River Blackwater so it must be assumed that crayfish plague could be present at Leader's Bridge and that appropriate biosecurity measures will be implemented (see Section 5.2).</p> <p>Given that in-stream works will occur during the proposed works including the diversion of the river using sandbags and that this species is an aquatic mobile species which may travel through the proposed works site, the possibility of any impacts cannot be ruled out at this stage.</p>	Yes
<i>Petromyzon marinus</i> (Sea Lamprey) [1095]	These five fish species are all potentially present in the Allow River during part of their lifecycle and are likely to migrate up the Blackwater River and the Allow River which is within the likely maximum	Yes

Qualifying interest	Identification of potential impacts	Potential impact
<p><i>Lampetra planeri</i> (Brook Lamprey) [1096] <i>Lampetra fluviatilis</i> (River Lamprey) [1099] <i>Alosa fallax fallax</i> (Twaite Shad) [1103] <i>Salmo salar</i> (Salmon) [1106]</p>	<p>extent of any water quality impacts from the proposed development. As such, the possibility of an ex-situ impact on these qualifying interests cannot be excluded at this stage.</p>	
<p><i>Lutra lutra</i> (Otter) [1355]</p>	<p>Evidence of otter was recorded during the site visit (See Section 4.2). Otter use watercourses for foraging and commuting. Given that in-stream works will occur, including the diversion of the watercourse using sandbags, the possibility of ex-situ impacts cannot be excluded at this stage.</p>	<p>Yes</p>
<p><i>Trichomanes speciosum</i> (Killarney Fern) [1421]</p>	<p>No suitable habitat for this species occurs in the vicinity of the proposed works. Therefore, the possibility of any impacts can be ruled out at this stage.</p>	<p>No</p>

6.2. Mitigation

6.2.1. Requirement and Approach

Section 6 of this NIS found that, in the absence of appropriate mitigation, the proposed works have the potential to adversely affect the conservation objectives for a number of qualifying interests of the Blackwater River (Cork/Waterford) SAC. The potential for such effects arises due to the risk of water quality impacts, and disturbance and habitat loss, associated with the works. This section prescribed mitigation measures to address these impacts and, thereby, eliminate the possibility of adverse effects.

The development of the mitigation measures prescribed in this section has followed the “mitigation hierarchy”, which prioritises avoidance over reduction, and actions at source over pathway over receptor, as follows: -

1. Eliminate the source of the impact.
2. Minimise or reduce the impact at its source.
3. Block or weaken the pathway for effects.
4. Abate effects at the receptor.

This approach assists with more complete removal of the effects, minimises the risk of effects occurring by less obvious pathways, also protects non-target receptors, and minimises the risks of unintended harm associated with measures focussed at or near the receptors.

6.2.2. General Measures

1. Cumnor’s Ecological Clerk of Works will monitor the performance of mitigation measures and issue reports on said performance after each site visit.
2. All site staff will be informed of best practice methodologies to be employed on site via the dissemination of a tool-box talk. This shall include the requirement for protection of aquatic habitats, the sensitivity of the SAC.
3. A Temporary Traffic Management zone will be created within the road corridor. This shall be used for parking and deliveries of materials. This is set out in Section 1.1.1.
4. Measures for working safely near water are set out in Section 1.1.1.
5. No invasive species were recorded in the vicinity of the works area.
6. Works will be carried out during day-time hours, except in the event of an emergency.
7. Any chemical, fuel and oil stores will be located on an impervious base within a secured bund with a storage capacity 110% of the stored volume.
8. Biodegradable oils and fuels will only be used.
9. Drip trays will be placed underneath any standing machinery to prevent pollution by oil/fuel leaks. Refuelling of vehicles and machinery will only be carried out on an impermeable surface in the assigned site compound and in an area well away from any watercourse or drainage (at least 20m).
10. Emergency spill kits will be available on site and staff will be trained in their use. A reporting system will be established on site to record accidents and/or spillages on site and the resultant action taken to remedy the incident.
11. Operators will check all equipment, machinery and vehicles on a daily basis before starting work to confirm the absence of leakages. Any leakages should be reported immediately and addressed.

12. Daily checks will be carried out and records kept on a weekly basis and any items that have been repaired/replaced/rejected noted and recorded. Any items of plant machinery found to be defective will be removed from site immediately or positioned in a place of safety until such time that it can be removed. All items of plant will be checked prior to use before each shift for signs of wear/damage.

6.2.3. Specific Mitigation Measures

As outlined above a number of mitigation and enhancement measures have been incorporated into the proposed works design to minimise any losses of biodiversity and, where possible, deliver a biodiversity gain. These measures are summarised below: -

1. The works will be undertaken within temporary dry working area formed by the placement of double sealed 1t sandbags which will divert the water through the central arch.
2. Sandbags will be installed at the downstream end to prevent backwatering of the dry working area.
3. The sandbags will be lifted into position from the bridge deck and the embankment.
4. No machinery is permitted to enter the watercourse.
5. IFI Biosecurity protocols will be followed for the duration of the works (refer to Section 5.2).
6. The dry working areas will contain any falling material from the works and prevent contamination of the surrounding watercourse.
7. The working area will be electro fished by IFI or approved third parties prior to the pumping out of water from the works area to establish the dry works area.

General Precautions

The following overarching measures shall apply to the construction phase: -

1. All works shall be undertaken within the agreed site boundary. No works shall be undertaken outside the site boundary.
2. As part of site induction, all persons entering the works area shall receive a 'tool-box talk' covering the environmental and ecological sensitivities of the site and the measures being implemented to avoid and minimise impacts on those sensitivities, as well as the responsibilities of persons on site in implementing those measures.
3. All parties will also be made aware of the presence of crayfish plague in the River Blackwater and the need for strict adherence to biosecurity measures.
4. All parties to be made aware that no works are to take place on the Eastern and Western Flood Passes.
5. Working hours shall be restricted to between 08:00 and 17:00.

Water Quality

The following measures shall apply to prevent water quality impacts generally: -

1. During all stages of construction, site management shall ensure that good housekeeping is maintained at all times and that all site personnel are made aware of the importance of the freshwater environments and the requirement to avoid pollution.
2. Safe handling of all potentially hazardous materials will be emphasised to all site personnel.
3. Tools and equipment shall not be cleaned in any watercourse and wash water shall not be discharged directly into any watercourse or road drains without appropriate treatment.

4. The Contractor shall make daily checks for elevated water levels/flows in the stream and weather warnings or flood alerts from Met Éireann and/or Cork County Council.
 - a. Should water levels in the river or overland flows pose a risk of overwhelming water quality control measures, or a weather warning for extreme rainfall or a flood alert covering County Cork be in place: -
 - i. All areas of exposed soil shall be securely covered with hessian matting,
 - ii. All stockpiles shall also be securely covered, and
 - iii. Works carrying the greatest risk of pollution, i.e. diversion of the Allow River, shall be suspended and all vehicles, plant, equipment, construction materials and personnel shall be removed from the flood zone.
 - b. Works may resume once any flood waters have receded and any warning/alert been lifted.

In addition, the measures in the following sub-sections shall apply to control the risk of water quality impacts from specific sources.

Run-off

The following measures shall be implemented to minimise the quantity of surface water run-off from the works area¹⁶ entering the river, and to minimise any potential contamination of such run-off by fine sediment or other deleterious matter: -

1. Where possible, run-off from outside of the works area shall be intercepted before entering the works area and diverted around it.
2. Stockpiles shall not be located within 20m of any watercourse and any stockpiles left overnight shall be covered.

Hydrocarbons

The following measures shall be implemented to control the risk of pollution from hydrocarbons, including fuels, hydraulic oils etc. on site: -

1. Storage of any fuels, oils and other hydrocarbons on site shall be in secure tanks/containers banded to 110% capacity.
2. Refuelling shall not be permitted within 50m of any watercourse.
3. All vehicles, plant, equipment etc. shall: -
 - a. Be free of any mechanical defects, and be well maintained so as to prevent fuel or oil leaks,
 - b. Be mechanically sound and checked before arriving on site,
 - c. Not be left idling when not in use, and
 - d. Be parked/stored on drip trays overnight.
4. Driving on site and shall be kept to a minimum.
5. All site personnel shall be familiar with their responsibilities under the ERP. In particular: -
 - a. All construction personnel shall be trained in the use of the spill containment/pollution control kits which will be kept on site.

¹⁶ In this section, the "works area" includes the site compound, stockpiles and temporary settlement pond.

- b. Any spillage of fuels, lubricants or hydraulic oils shall be immediately contained and a pollution control kit used. The contaminated soil shall be removed off site and properly disposed of.
 - c. Any spillage of fuels, lubricants or hydraulic oils, shall be reported immediately to the ECoW.
6. Additional drip trays and spill kits shall be accessible from the storage container.

Concrete

The following measures shall be implemented to prevent contamination of surface waters by concrete or other cementitious materials: -

1. Within the dry works area created by sealed sandbags shuttering shall be used to contain the wet concrete and blinding as appropriate, and the shuttering shall be surrounded with hessian sandbags to further prevent any contamination of nearby waters. As noted, however, these works will be contained within the dry works area created by large sandbags.
2. Further details are set out under Grouting to Pier – in Section 1.1.1.
3. Where concrete is to be delivered by pipe to the working area – the pipe will be fitted with an emergency cut-off and pumping will be supervised by an operative at the truck at all times.
4. Any shuttering is to be oversized in order to prevent any spillage.
5. Concrete lorries shall not be permitted to wash out on site.

Invasive Alien Species

The following biosecurity measures shall be implemented to control risks from aquatic invasive alien species and pathogens: -

1. In-stream works shall be restricted to those described in Sections 1.1. No other access into watercourses shall be permitted for plant, equipment or personnel.
2. The 'toolbox talk' for all persons entering the site shall include an overview of aquatic invasive alien species and pathogens, the importance of preventing their spread, and the responsibilities of site staff in avoiding any such spread.
3. Equipment, tools or PPE shall be treated using a combination of *Check, Clean and Dry* protocol as recommended by both NPWS and IFI and Virkon Aquatic or equivalent disinfectant before and after contact with the Allow River and any other watercourse (refer to Section 5.2).
4. The ECoW shall carry out weekly checks for compliance with the aquatic biosecurity measures.

6.2.4. Ecological Supervision

The Contractor shall retain the services of a suitably qualified and experienced Ecological Clerk of Works (ECoW) for the duration of the works.

The qualifications and experience of the ECoW shall include, as a minimum: -

- BSc (Hons) or above in Ecology or a related environmental discipline.
- Full membership of the CIEEM or equivalent membership of a similar professional body.
- Demonstrable experience in providing ecological/environmental oversight on construction sites, including sites where IAPS and sensitive watercourses are present.

The main duties of the ECoW shall include the following: -

1. Assist the Contractor in ensuring that the measures in this NIS, any conditions of consents/licences and relevant TII guidelines are fully and properly implemented during construction.
2. Undertake pre-construction surveys for legally restricted IAPS, as well as a recheck of the site for protected species or nesting birds.
3. Directly supervise key activities on site, including: -
 - a. Diversion of the Allow River away from the eastern arch for the duration of works,
4. Carry out weekly inspections of the site and document the implementation of the measures in this NIS, any conditions of consents/licences and relevant TII guidelines. The ECoW's records shall be available to TII or TII's Representative, the NPWS and IFI, on request.
5. Provide monthly updates to TII or TII's Representative on the implementation of the mitigation measures detailed in this NIS and any ecological/environmental incidents on site.

6.2.5. Biosecurity Measures

This will utilise the *Check, Clean and Dry* protocol as recommended by both NPWS and IFI¹⁷. Full details of this approach are set out in Invasives Species Ireland webpage¹⁸. This will be done at the Contractor's main compound before any equipment is brought on site and again after completion of works before any equipment is moved to and used in a different watercourse.

NPWS summarise this approach as follows¹⁹: -

Check, Clean and Dry protocol: Check, clean and thoroughly dry equipment and clothing that comes in contact with the water before using again. If everything cannot be dry for at least 48 hours before re-entering the water, then disinfect it.

- CHECK your gear, footwear and watercraft after leaving the water for mud, aquatic animals, or plant material. Remove anything you find and leave it at the site.
- CLEAN everything thoroughly as soon as you can. Pay particular attention to nets, waders, and areas that are damp and hard to inspect. If possible, use hot water (at least 45°C) or a high-pressure spray.
- DRY all equipment and clothing until dry for at least 48 hours – some species can live for many days or weeks in moist conditions.
- Where any further disinfection is required while on site, Vikron spray will also be used on any plant, PPE or tools in or near the watercourse.

6.2.6. Recommendations / biodiversity gain

It is recommended that the following are installed on the bridge: -

1. 3 no. Schwegler 2FE model (with back plate) to be mounted on the southern wall of the bridge (or equivalent).
2. 1 no. Vivara Pro WoodStone Grey Wagtail and Dipper Nest Box (or equivalent) to be mounted within one of the arches.

¹⁷ As noted crayfish plague has been recorded in the River Blackwater – see e.g. <https://www.fishhealth.ie/fhu/news-media/news/update-crayfish-plague-ireland-0>

¹⁸ <https://invasives.ie/biosecurity/check-clean-dry/>

¹⁹ From - <https://www.gov.ie/en/press-release/43bfd-water-users-urged-to-take-precautions-due-to-outbreak-of-crayfish-plague-in-the-munster-blackwater-catchment/>

6.3. Assessment of Residual Effects

Table 6.1 analyses the potential impacts identified in Section 6.1 following the implementation of mitigation measures, as outlined in Section 1.1 and 6.2, and evaluates the significance of their effects in view of the relevant conservation objectives, as defined by their specific attributes and targets.

Conservation objectives for species and habitats listed in Table 6.2 are presented in Appendix A (extracted from NPWS, 2012) and are also discussed as appropriate under *Description of effects*, below.

Table 6.2 Evaluation of effects on Blackwater River (Cork/Waterford) SAC.

Qualifying interest	Comment
<i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029]	<p>The attributes of the conservation objective for freshwater pearl mussel are distribution, population size, Population structure: recruitment, Population structure: adult mortality, Habitat extent, Water quality: macroinvertebrate and phyto-benthos (diatoms), Substratum quality: filamentous algae (macroalgae), macrophytes (rooted higher plants), Substratum quality: sediment, Substratum quality: oxygen availability, Hydrological regime: flow variability and host fish (NPWS, 2012).</p> <p>As noted suitable pearl mussel habitat is not recorded at Leader's Bridge by NPWS. No pearl mussel are present within or close to the works area (surveyed as recently as 2023).</p> <p>[REDACTED]</p> <p>As there will be no alterations to the bridge structure the hydrological regime of the river at Leader's Bridge will not be altered.</p> <p>The main risk during works is escape of silts that might affect substrate and water quality. However, this is to be mitigated by the measures outlined above.</p> <p>Negative impacts to pearl mussel arising from the proposed works are not anticipated.</p>
Sea Lamprey (<i>Petromyzon marinus</i>)	<p>The attributes of the conservation objective for the three lamprey species relate to distribution, population structure of juveniles, juvenile density in fine sediment, extent and distribution of spawning habitat and availability of juvenile habitat.</p> <p>The proposed works will not impact on any spawning or juvenile habitat in the SAC or affect the connectivity for lampreys along rivers in the SAC. Therefore, there will be no effect on Brook Lamprey and the only potential effects on Sea or River Lamprey relate to ex-situ impacts via water quality in the Blackwater River, the relevant attributes being (indirectly) population structure of juveniles and juvenile density in fine sediment. The targets for these attributes relate to the number or age classes present and proportion of sample sites positive for juveniles.</p> <p>Given that instream works are required the main risk during works is escape of silts that might affect substrate and water quality. However, this is to be mitigated by the measures outlined above.</p> <p>Negative impacts to lamprey species arising from the proposed works are not anticipated.</p>
Brook Lamprey (<i>Lampetra planeri</i>)	
River Lamprey (<i>Lampetra fluviatilis</i>)	
Atlantic Salmon (<i>Salmo salar</i>)	<p>The attributes of the conservation objective for Atlantic Salmon relate to distribution (extent of anadromy), abundance of adult spawning fish, fry and out-migrating smolts, number and distribution of redds, and water quality. As mentioned, the only pathway from the proposed works to the salmon population in the SAC, is for impacts on water quality on the Allow River and Blackwater River within the SAC, as a result of the proposed works.</p> <p>As the specific target for water quality related only to the Q-values at sample sites within the SAC, this target will not be affected.</p>

Qualifying interest	Comment
	<p>Given that instream works are required the main risk during works is escape of silts that might affect substrate and water quality. However, this is to be mitigated by the measures outlined above.</p> <p>Negative impacts to Atlantic salmon arising from the proposed works are not anticipated.</p>
<p>Otter (<i>Lutra lutra</i>)</p>	<p>The attributes of the conservation objective for this qualifying interest relate to distribution, extent of terrestrial habitat, extent of marine habitat, extent of freshwater (river) habitat, extent of freshwater (lake) habitat, couching sites and holts, fish biomass and barriers to connectivity.</p> <p>While evidence of otters was observed during the site visits no otter holts were recorded.</p> <p>There will be no loss of instream, terrestrial or marine otter habitat.</p> <p>There will be no negative impact to prey species which Otter feed on.</p> <p>Given that instream works are required the main risk during works is escape of silts that might affect substrate and water quality. However, this is to be mitigated by the measures outlined above.</p> <p>Works will take ca. 4 weeks. Works will be during daylight hours. Not all bridge arches are to be closed. While there is likely to be some disturbance during working hours, Otters will be able to continue to move upstream / downstream along the river outside of daylight working hours. Otter are therefore not likely to be pushed up onto the N72 in order to pass Leader's Bridge.</p> <p>With respect to disturbance note that works to improve Ballymaquirk Junction on the N72 are due to finish in December 2023.</p> <p>Negative impacts to Otter arising from the proposed works are not anticipated.</p>
<p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]</p>	<p>The attributes of the conservation objective for this qualifying interest relate to habitat distribution, habitat area, hydrological regime: river flow, hydrological regime: tidal influence, substratum composition: particle size range, water quality: nutrients, vegetation composition: typical species and floodplain connectivity: area. Given that in-stream works will occur during the proposed works, there will be temporary impacts in relation to the hydrological regime: river flow and there is a possibility for impacts to the water quality. However, this is to be mitigated by the measures outlined above.</p> <p>Negative impacts to floating river vegetation arising from the proposed works are not anticipated.</p>
<p><i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092]</p>	<p>The attributes of this conservation objective for this qualifying interest relate to distribution, population structure: recruitment, negative indicator: recruitment, disease, water quality, habitat quality: heterogeneity. Given that in-stream works are proposed during the proposed works and that there is potential for water quality impacts as a result of the proposed works, the attributes for this species which may be affected are water quality and disease. During the proposed works, there is potential for Crayfish plague (<i>Aphanomyces astaci</i>) to be introduced to the watercourse, given the use of machinery within and alongside the watercourse. Although the proposed works are of a short duration (4 weeks), mitigation measures as outlined above, including strict adherence to biosecurity, will be implemented in order to prevent any negative impacts to crayfish.</p> <p>As noted in order to dewater the works area IFI will electro-fish following installation of the line of sand bags. Any crayfish encountered will also be safely relocated outside the works area. Negative impacts to crayfish arising from the proposed works are not anticipated.</p>

6.4. Potential In-combination Effects

6.4.1. Approach and Methodology

The objective of this requirement is to capture significant effects potentially arising from the cumulation or other interaction of non-significant effects from multiple plans and projects. Consequently, the assessment of potential in-combination effects is not a pair-wise assessment, rather, it considers the totality of the effects arising from all plans and projects affecting the Natura 2000 site(s) in question. In identifying the plans and projects to be included in this assessment, it is important to define an appropriate geographical scope and timescale over which potential in-combination effects are to be considered and the sources of information to be consulted, as described below. It is also important to consider the nature of the interactions between effects, which may be additive, antagonistic, synergistic or complex.

For practical reasons, the effects from the proposed works which are considered in the assessment of potential in-combination effects are the residual effects described in Section 7.3 above, rather than the potential effects in the absence of any mitigation. For this reason, this assessment is documented following the description of the mitigation measures and residual effects.

6.4.2. Geographical Scope

In defining the geographical scope for identifying potential in-combination effects, it is important to remember that effects are evaluated in view of the conservation objectives of the Natura 2000 site(s) concerned. As such, two or more effects relating to the same conservation objective for a given Natura 2000 site would combine even if their geographical extents did not overlap. For example, the loss of a small area of an Annex I habitat type listed as a qualifying interest of a Natura 2000 site would combine with the loss of an entirely unconnected area of the same habitat type from a remote part of the same site to produce an in-combination effect, the significance of which would need to be evaluated in view of the relevant conservation objective. On that basis, the scope of the assessment of in-combination effects extends to all plans and projects affecting the same conservation objectives as the plan or project under consideration, irrespective of whether those effects are significant or not.

However, given the scale of the proposed works and localised extents of the impacts associated with them in this case, it was deemed sufficient to include only areas in close proximity to the proposed works and their zones of impact in the geographical scope for identifying potential in-combination effects. For plans and larger-scale projects, this geographical scope was extended to the full areas of the three Natura 2000 sites concerned and adjoining areas.

6.4.3. Timescale

The proposed works are predicted to take four weeks to complete. It is not known at this time when works would take place, but it will be either autumn 2023 or spring 2024. Given the nature and magnitude of their residual effects, there will be complete recovery of effects to Natura 2000 sites within a brief period following their completion, with no effects whatsoever remaining beyond the end of proposed works. On that basis, there are no effects from the proposed works which could act in combination with effects from other plans and projects beyond the end of proposed works. Therefore, other plans and projects considered in this assessment included those with potential effects between now and the Summer of 2024.

6.4.4. Sources of Information

The following sources of information were consulted to gather information on other plans and projects: -

- *EIA* *Portal*
<<https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=d7d5a3d48f104ecbb206e7e5f84b71f1>> [accessed 05/07/2023].
- *EPA Maps* <<https://gis.epa.ie/EPAMaps>> [accessed 05/07/2023].
- *Cork County Development Plan, 2022-2028*.
- *Ireland's Marine Atlas* <<https://atlas.marine.ie/>> [accessed 05/07/2023].

The threats, pressures and activities with negative impacts on the Natura 2000 sites selected for inclusion in this assessment (see Section 5.3 of this NIS) were used to identify plans and projects which, by their nature, are likely to give rise to potential impacts on the sites concerned.

The Cork County Development Plan 2022-2028²⁰ sets out how the County will grow and develop over the next six years, while complementing a longer 2040 vision. The main objectives of the Plan are as follows: -

- To preserve, protect, maintain and, where appropriate, enhance the terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species.
- Ensure no adverse effects on the integrity of any European site, with regard to its qualifying interests, associated conservation status, structure and function.
- Safeguard national, regional and local designated sites and supporting features which function as stepping stones for migration, dispersal and genetic exchange of wild species.
- Enhance biodiversity in line with the National Biodiversity Strategy and its targets; and
- To protect, maintain and conserve the County's natural capital.

The Plan contains a number of Biodiversity objectives, which includes the protection and enhancement of designated sites and areas of natural heritage and biodiversity and the habitats, flora and fauna for which it is designated, and to protect, enhance and conserve designated species. An Appropriate Assessment Screening Report was prepared for the Plan, which assessed the Plan regarding its potential to adversely affect the integrity of European sites. The findings of the AA were integrated into the Plan, ensuring that potential adverse effects have been and will be avoided, reduced or offset (CAAS, 2022). As outlined in the Plan, this AA Screening report is being prepared to ensure that the proposed works will not have significant effects on European sites. Given the elements outlined above, the Cork City Council Development Plan 2022-2028 is not anticipated to have any significant effect in combination with the proposed works.

Farmers and landowners may also undertake general agricultural operations in areas adjacent to the proposed works and along the river, which could potentially give rise to impacts of a similar nature to those arising from the proposed works. This could potentially result in additional an increased risk to water quality. Many agricultural operations are periodic, not continuous in nature, and qualify as Activities Requiring Consent (ARCs) that require consultation with the NPWS in advance of the works, e.g. reclamation, infilling or land drainage within 30m of the river, removal of trees or any aquatic vegetation within 30m of the river, and harvesting or burning of reed or willow (NPWS, 2022a). Agricultural operations must also comply with the European Communities (Environmental Impact Assessment) (Agriculture) Regulations, 2011 (as amended) in relation to: -

- Restructuring of rural land holdings,
- Commencing use of uncultivated land or semi-natural areas for intensive, and
- Land drainage works on lands used for agriculture.

A Natura Impact Statement (NIS) is required under Regulation 9 if it is likely to have a significant effect on a Natura 2000 site. The drainage or reclamation of wetlands is controlled under the Planning and Development (Amendment) (No. 2) Regulations, 2011 and the European Communities (Amendment to Planning and Development) Regulations, 2011. Therefore, the in-combination effects of agricultural operations and the proposed works are not likely to be significant.

A Strategic Environmental Assessment (SEA) and Natura Impact Report (NIR) was prepared for the draft Cork County Development Plan, which assessed the CDP and its potential to adversely affect the environment as a whole and the integrity of Natura 2000 sites²¹. This sets out in full the approach to the Appropriate Assessment, how aspects of the Plan were considered and how the Plan will be implemented and delivered while protecting European sites; thus, ensuring that potential impacts were avoided, reduced or offset. Thus, the finding of the assessments was that the Plan will not adversely affect the general biodiversity and the integrity of Natura 2000

²⁰ Cork City Council Development Plan 2022-2028 <https://www.corkcity.ie/en/cork-city-development-plan/>

²¹ <https://www.corkcoco.ie/en/resident/planning-and-development/cork-county-development-plan-2022-2028>

sites due to the incorporation of mitigation measures into the Plan as a result of the assessment processes. A summary of the Screening Assessment is presented in Table 5.2 of the NIR. Chapter 6.0 of the NIR further outlines the consideration of In-Combination Impacts.

Projects that have been granted planning permission in the vicinity of the proposed works within the last 5 years were reviewed through the Cork County Council Cork Planning Enquiry System and the National Planning Application Map Viewer (MyPlan.ie). A summary of the developments within the immediate environs of the site is presented in Table 6.1 below.

Near the proposed works, projects that have been granted planning permission include retention of existing developments, typically extensions to domestic dwellings, or the construction of new domestic dwellings or extensions to such dwellings. Regarding potential impacts to water quality, these projects will have to comply with the EPA's Code of Practice for Wastewater Treatment Systems for Single Houses (EPA, 2009, 2018). These developments have conditions attached to their planning permission relating to sustainable development, such as siting of septic tanks, foul surface water and effluent drainage facilities, and clean surface water run-off drainage facilities. Therefore, it is not anticipated that the developments that have been granted permission will have any significant effects in combination with the proposed works.

Works to upgrade the N72 Ballymaquirk Junction are currently underway on site (see Figure 8.1). This is located Full details of works can be viewed on Cork Road Design Office webpage²². As part of these works a haul road has been constructed along the northern side of the road; this will be used by the Contractor to access Leader's Bridge (see Figure 6.2). Scheduled date for completion of works is December 2023. An NIS was prepared in support of Planning and submitted to An Bord Pleánala (Moore Group, 2021).

²² <https://www.corkrdo.ie/address/n72-ballymaquirke-junction-upgrade-scheme/>

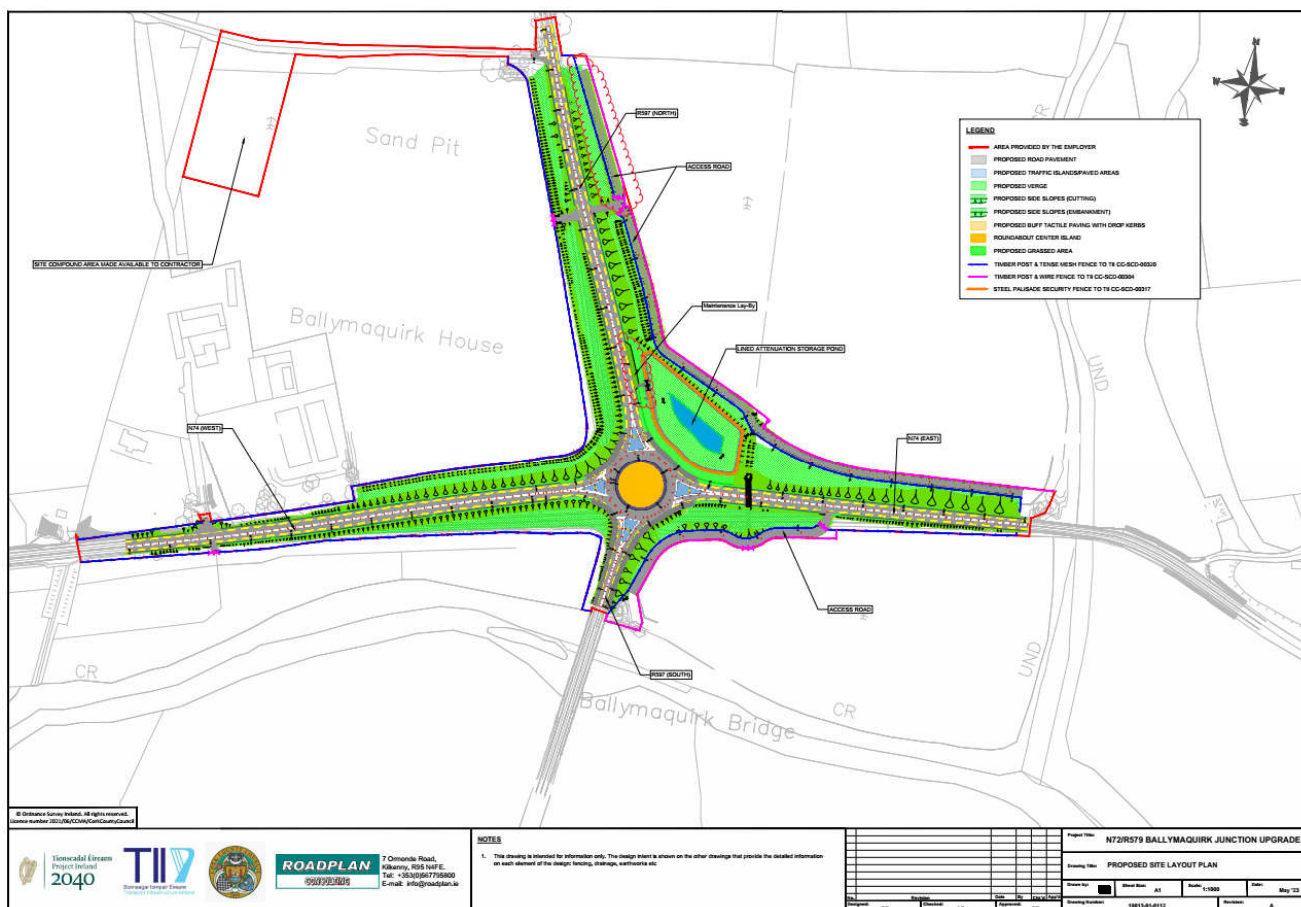


Figure 6.5 Upgrade proposals for N72 Ballymaquirk Junction.

Table 6.3 Summary of nearby, recent planning applications.

Planning No.	Location	Development Type	Status
21/6765	Ballymaquirk, Kanturk, Co. Cork	Permission for the retention of (a) the demolition of factory building (factory 1), (b) retention of the construction of factory building (factory 1) and (c) retention of the construction of a loading mechanism (gantry crane) all within an overall site of 32.80 acres.	Granted
21/4718	The Former Duhallow Park Hotel Site, Dromcummer Beg and Coolacheesker (townlands), Kanturk, Co. Cork	Construction of a crematorium and all associated site works and landscaping including decommissioning of existing waste water treatment system and provision of new waste water treatment system, new vehicle parking and circulation, removal of the entrance gateposts, alterations to entrances at existing locations to create one entrance/exit with right turning lane off N72. A Natura Impact Statement will be submitted to the planning authority with the application.	Refused
15/4775	Ballymaquirk, Kilcaskan South, Kanturk	Re-profiling of a 200m section along the south bank of the River Allow at Ballymaquirk/Kilcaskan South, Kanturk. The aim is to reduce excessive river bank erosion and consequent siltation to the river and protect Atlantic salmon spawning beds and freshwater pearl mussel habitat further downstream	Condition permission granted

6.4.5. Conclusion of Cumulative Assessment

In the review of the projects and plans that was undertaken, no works that could potentially result in additional or in-combination impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the proposed works at Leader's Bridge identified.

7. Conclusion

This NIS has examined the details of the proposed works on Leader's Bridge and the Natura 2000 sites in its Zone of Influence. It has analysed the potential impacts of the proposed works on the receiving natural environment and evaluated their effects, both individually and in combination with other plans and projects, in view of the conservation objectives of the relevant Natura 2000 sites. This report has been prepared in line with the Habitats Directive, as transposed into Irish law by the Habitats Regulations, relevant case law and guidance from the European Commission, the Department of the Environment, Heritage and Local Government and the Office of the Planning Regulator, on the basis of objective information and adhering to the precautionary principle.

Given the prescription of the mitigation measures detailed in Section 7 of this NIS, it can be concluded beyond reasonable scientific doubt that the proposed works will not, either individually or in combination with other plans or projects, give rise to any impacts which would constitute adverse effects on the Blackwater River (Cork/Waterford) SAC or any other Natura 2000 site, in view of their conservation objectives. Therefore, it is the recommendation of the authors of this report and that TII, as the competent authority in this case, may determine that the proposed works, either individually or in combination with other plans or projects, will not adversely affect the integrity of any Natura 2000 site, provided that the mitigation prescribed in this NIS is fully and properly implemented.

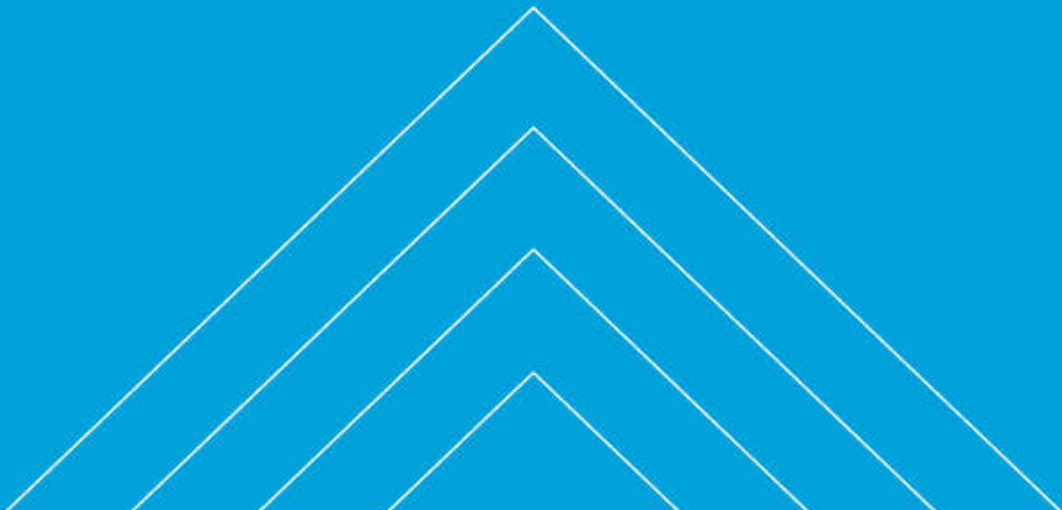
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Appendices



Appendix A. Conservation Objectives

A.1. Conservation objectives for species and habitats discussed in Table 6.2

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1029 Freshwater Pearl Mussel *Margaritifera margaritifera*

To restore the favourable conservation condition of the Freshwater Pearl Mussel in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Kilometres	Maintain at 161km. See map 8	The freshwater pearl mussel is known from the main Blackwater River, two tributaries (Owentaraglin and Allow) and the Licky River, which discharges to the Upper Blackwater Estuary. 168km encompasses the length of channel from the most upstream records of the freshwater pearl mussel to the most downstream records of live mussels, and contained within the freshwater pearl mussel catchment boundaries displayed on map 8
Population size	Number of adult mussels	Restore to 35,000 adult mussels	The SAC has three populations listed on the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations of 2009 (Government of Ireland, 2009b): Munster Blackwater, Allow (Munster Blackwater) and Licky. The separation of the main channel Blackwater and Allow into two populations is artificial and no longer considered appropriate. The Licky, however, is a distinct population, being separated from the Blackwater by brackish water and a hydrological distance of approx. 30km, making genetic exchange very unlikely. Information on the size of the population in the Blackwater and its tributaries is poor, but estimated at less than 10,000 for the Blackwater main channel (target set at 10,000); and between 10,000 and 20,000 for the Allow tributary (target set at 15,000) (DEHLG, 2010a, 2010b). The Licky population was estimated as just greater than 10,000 in 2005, but was estimated to have declined to approx. 4,700 by 2009 (target set at 10,000) (Ross, 2005; DEHLG, 2010c)

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1029 Freshwater Pearl Mussel *Margaritifera margaritifera*

To restore the favourable conservation condition of the Freshwater Pearl Mussel in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population structure: recruitment	Percentage per size class	Restore to least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length	Mussels of no more than 65mm are considered 'young mussels' and may be found buried in the substratum and/or beneath adult mussels. Mussels of no more than 30mm are 'juvenile mussels' and are always buried in the substratum. The Blackwater population is believed to be composed entirely of aged adults, with no evidence of recruitment for at least 20 years (DEHLG, 2010a). No juvenile mussels were found in the Allow and 8.3% of the population was no more than 65mm in length in 2009 (DEHLG, 2010b). No young or juvenile mussels were recorded in the Licky during monitoring in 2005 or 2009 and there was no evidence that recruitment had occurred in at least 12 years, with the smallest mussel in 2009 measuring 85.3mm (Ross, 2005; DEHLG 2010c)
Population structure: adult mortality	Percentage	No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution	5% is considered the cut-off between the combined errors associated with natural fluctuations and sampling methods and evidence of true population decline. 1% of dead shells is considered to be indicative of natural losses. The Allow passed the target for live adults, but failed that for dead shells in 2009 (DEHLG, 2010b). The Blackwater and Licky failed both targets in 2009 (DEHLG, 2010a, 2010c)

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1029 Freshwater Pearl Mussel *Margaritifera margaritifera*

To restore the favourable conservation condition of the Freshwater Pearl Mussel in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat extent	Kilometres	Restore suitable habitat in more than 35km (see map 8) and any additional stretches necessary for salmonid spawning	The species' habitat covers stretches of very large, high energy, lowland rivers (Blackwater) and a short coastal river (Licky); and is a combination of 1) the area of habitat adult and juvenile mussels can occupy and 2) the area of spawning and nursery habitats the host fish can occupy. Fish nursery habitat typically overlaps with mussel habitat. Fish spawning habitat is generally adjacent to mussel habitat, but may lie upstream of the generalised mussel distribution. Only those salmonid spawning areas that could regularly contribute juvenile fish to the areas occupied by adult mussels should be considered. The availability of mussel habitat and fish spawning and nursery habitats are determined by flow and substratum conditions. The habitat for the species is currently unsuitable for the survival of adult mussels or the recruitment of juveniles. The target is based on the stretches of river identified, from a combination of dedicated survey and incidental records, as having suitable habitat for the species. As there has been no full baseline survey, the quality of the data from the Blackwater and its tributaries is poor
Water quality: macroinvertebrate and phytobenthos (diatoms)	ecological quality ratio (EQR)	Restore water quality-macroinvertebrates: EQR greater than 0.90; phytobenthos: EQR greater than 0.93	These EQRs correspond to high ecological status for these two Water Framework Directive biological quality elements. They represent high water quality with very low nutrient concentrations (oligotrophic conditions). The habitat in the Blackwater and Licky failed both standards during 2009 sampling for the Sub-basin Management Plans, while the Allow failed the macroinvertebrate target (DEHLG, 2010a, 2010b, 2010c). See also The European Communities Environmental Objectives (Surface Water Objectives) Regulations 2009 (Government of Ireland, 2009a)

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1029 Freshwater Pearl Mussel *Margaritifera margaritifera*

To restore the favourable conservation condition of the Freshwater Pearl Mussel in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Substratum quality: filamentous algae (macroalgae), macrophytes (rooted higher plants)	Percentage	Restore substratum quality- filamentous algae: absent or trace (<5%); macrophytes: absent or trace (<5%)	Significant growth of macrophytes was found at some sites in all three populations sampled during 2009 for the Sub-basin Management Plans (DEHLG, 2010a, 2010b, 2010c). Filamentous algae were below the target at all sites sampled in the Allow, however significant growths were detected at some sampling sites in the Blackwater and Licky (DEHLG, 2010a, 2010b, 2010c). Recruitment of juvenile mussels is being prevented by the poor quality of the river substrate
Substratum quality: sediment	Occurrence	Restore substratum quality- stable cobble and gravel substrate with very little fine material; no artificially elevated levels of fine sediment	The habitat for the species is currently unsuitable for the recruitment of juveniles owing to sedimentation of the substratum. In some locations, it is also unsuitable for the survival of adult mussels, notably stretches of the Licky (DEHLG, 2010c). Significant sedimentation has been recorded during all recent mussel monitoring surveys, particularly in the Licky and Allow (DEHLG, 2010a, 2010b, 2010c). Recruitment of juvenile mussels is being prevented by the poor quality of the river substrate
Substratum quality: oxygen availability	Redox potential	Restore to no more than 20% decline from water column to 5cm depth in substrate	Differences in redox potential between the water column and the substrate correlate with differences in oxygen levels. Juvenile mussels require full oxygenation while buried in gravel. In suitable habitat, there should be very little loss of redox potential between the water column and underlying gravels. Redox potential data are currently only available from the Allow, where loss in 2009 was 31.5 - 44.1% at 5cm depth (DEHLG, 2010b)
Hydrological regime: flow variability	Metres per second	Restore appropriate hydrological regimes	The availability of suitable freshwater pearl mussel habitat is largely determined by flow (catchment geology being the other important factor). In order to restore the habitat for the species, flow variability over the annual cycle must be such that: 1) high flows can wash fine sediments from the substratum, 2) low flows do not exacerbate the deposition of fines and 3) low flows do not cause stress to mussels in terms of exposure, water temperatures, food availability or aspects of the reproductive cycle

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1029 Freshwater Pearl Mussel *Margaritifera margaritifera*

To restore the favourable conservation condition of the Freshwater Pearl Mussel in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Host fish	Number	Maintain sufficient juvenile salmonids to host glochidial larvae	Salmonid fish are host to the larval form of the freshwater pearl mussel and, thus, they are essential to the completion of the life cycle. 0+ and 1+ fish are typically used, both because of the habitat overlaps and the development of immunity with age in the fish. Fish presence is considered sufficient, as higher densities and biomass of fish are indicative of enriched conditions in mussel rivers. Geist et al. (2006) found that higher densities of host fish coincided with eutrophication, poor substrate quality for pearl mussels and a lack of pearl mussel recruitment, while significantly lower densities and biomass of host fish were associated with high numbers of juvenile mussels. Fish movement patterns must be such that 0+ fish in the vicinity of the mussel habitat remain in the mussel habitat until their 1+ summer. No fish stocking should occur within the mussel habitat, nor any works that may change the salmonid balance or residency time. The Allow and Licky freshwater pearl mussel populations appear to favour native brown trout (<i>Salmo trutta</i>), therefore, it is particularly important that these are not out-competed by stocked fish (DEHLG, 2010b, 2010c). No data on fish preferences are available for the Blackwater

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1092 White-clawed Crayfish *Austropotamobius pallipes*

To maintain the favourable conservation condition of White-clawed Crayfish in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Occurrence	No reduction from baseline. See map 9	Within the Blackwater River system, white-clawed crayfish is present only on the Awbeg River. The Awbeg flows through limestone geology. There are other tributaries of the Blackwater with limestone geology but are not known to contain the species. The main Blackwater is considered chemically unsuitable for the crayfish. However, there have been two recent records from other parts of the river system. One was downstream of the confluence of the Awbeg and Blackwater and may simply represent a specimen moving out of the Awbeg. The second was upstream of Mallow and this may represent a new population or an introduction. More information is needed on these. On the Awbeg, the crayfish is found along the whole length of the designated part of the river. The Environmental Protection Agency (EPA) river quality monitoring on the Awbeg did not detect any crayfish in 2009. However, large numbers were found during river maintenance work in 2009 upstream of Buttevant and these were translocated to undisturbed habitat (Williams, 2009)
Population structure: recruitment	Percentage occurrence of juveniles and females with eggs	Juveniles and/or females with eggs in at least 50% of positive samples	See Reynolds et al. (2010) for further details
Negative indicator species	Occurrence	No alien crayfish species	Alien crayfish species are identified as major direct threat to this species and as disease vector. See Reynolds (1998) for further details
Disease	Occurrence	No instances of disease	Disease is identified as major threat and has occurred in Ireland even in the absence of alien vectors. See Reynolds et al. (2010) for further details
Water quality	EPA Q value	At least Q3-4 at all sites sampled by EPA	Target taken from Demers and Reynolds (2002). Q values based on triennial water quality surveys carried out by the EPA

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1092 White-clawed Crayfish *Austropotamobius pallipes*

To maintain the favourable conservation condition of White-clawed Crayfish in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat quality: heterogeneity	Occurrence of positive habitat features	No decline in heterogeneity or habitat quality	Crayfish need high habitat heterogeneity. Larger crayfish must have stones to hide under, or an earthen bank in which to burrow. Hatchlings shelter in vegetation, gravel and among fine tree-roots. Smaller crayfish are typically found among weed and debris in shallow water. Larger juveniles in particular may also be found among cobbles and detritus such as leaf litter. These conditions must be available on the whole length of occupied habitat

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1095 Sea Lamprey *Petromyzon marinus*

To restore the favourable conservation condition of Sea Lamprey in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution: extent of anadromy	% of river accessible	Greater than 75% of main stem length of rivers accessible from estuary. See map 10 for recorded distribution	Artificial barriers can block or cause difficulties to lampreys' upstream migration, thereby limiting species to lower stretches and restricting access to spawning areas. See Gargan et al. (2011)
Population structure of juveniles	Number of age/size groups	At least three age/size groups present	Attribute and target based on data from Harvey and Cowx (2003) and O'Connor (2007)
Juvenile density in fine sediment	Juveniles/m ²	Juvenile density at least 1/m ²	Juveniles burrow in areas of fine sediment in still water. Attribute and target based on data from Harvey and Cowx (2003)
Extent and distribution of spawning habitat	m ² and occurrence	No decline in extent and distribution of spawning beds. See map 10 for recorded locations	Attribute and target based on spawning bed mapping by Inland Fisheries Ireland (IFI). Lampreys spawn in clean gravels. Survey in 2010 indicated accumulations of redds downstream of major weirs. (See also Gargan et al., 2011)
Availability of juvenile habitat	Number of positive sites in 3rd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive. See map 10 for recorded locations	Despite observed spawning activity, sampling for ammocoetes consistently fails to find these in many sampling stations and never in any great numbers. See King and Linnane (2004)

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1099 River Lamprey *Lampetra fluviatilis*

To maintain the favourable conservation condition of River Lamprey in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	% of river accessible	Access to all water courses down to first order streams	Artificial barriers can block or cause difficulties to river lampreys' migration, both up- and downstream, thereby possibly limiting species to specific stretches and creating genetically isolated populations (Espanhol et al., 2007)
Population structure of juveniles	Number of age/size groups	At least three age/size groups of river/brook lamprey present	Attribute and target based on data from Harvey & Cowx (2003). It is impossible to distinguish between river and brook lamprey juveniles in the field (Gardiner 2003), hence they are considered together in this target
Juvenile density in fine sediment	Juveniles/m ²	Mean catchment juvenile density of brook/river lamprey at least 2/m ²	Juveniles burrow in areas of fine sediment in still water. Attribute and target based on data from Harvey & Cowx (2003) who state 10/m ² in optimal conditions and more than 2/m ² on a catchment basis
Extent and distribution of spawning habitat	m ² and occurrence	No decline in extent and distribution of spawning beds	Spawning site and redd attributes established by IFI (Rooney et al., in press)
Availability of juvenile habitat	Number of positive sites in 2nd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive. See map 10 for recorded locations of brook/river lamprey juveniles	Many sites with suitable larval attributes i.e. fine sediment in low velocity habitat, are found not to contain larval lamprey. This may be a function of chance or probability, or may be a consequence of insufficient recruitment to fill all spatial niches. Occupancy in excess of 50% of sites would be reasonable for the Irish catchments examined to date (King and Linnane, 2004; King et al., unpublished data)

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1106 Atlantic Salmon *Salmo salar* (only in fresh water)

To maintain the favourable conservation condition of Atlantic Salmon in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution: extent of anadromy	% of river accessible	100% of river channels down to second order accessible from estuary	Artificial barriers block salmon's upstream migration, thereby limiting species to lower stretches and restricting access to spawning areas. Large weirs on the Blackwater may delay salmon upstream migration in certain water conditions but do not generally prevent access to spawning areas
Adult spawning fish	Number	Conservation Limit (CL) for each system consistently exceeded	A conservation limit is defined by the North Atlantic Salmon Conservation Organisation (NASCO) as "the spawning stock level that produces long-term average maximum sustainable yield as derived from the adult to adult stock and recruitment relationship". The target is based on the Standing Scientific Committee of the National Salmon Commission's annual model output of CL attainment levels. See SSC (2010). Stock estimates are either derived from direct counts of adults (rod catch, fish counter) or indirectly by fry abundance counts. The Blackwater is currently exceeding its CL for one sea winter salmon and its multi sea winter CL for 2012
Salmon fry abundance	Number of fry/5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling	Target is threshold value for rivers currently exceeding their conservation limit (CL). As stock estimates are estimated by direct counts for the Blackwater, this attribute is not currently being measured at this site
Out-migrating smolt abundance	Number	No significant decline	Smolt abundance can be negatively affected by a number of impacts such as estuarine pollution, predation and sea lice (<i>Lepeophtheirus salmonis</i>)
Number and distribution of redds	Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes	Salmon spawn in clean gravels
Water quality	EPA Q value	At least Q4 at all sites sampled by EPA	Q values based on triennial water quality surveys carried out by the Environmental Protection Agency (EPA)

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

1355 Otter *Lutra lutra*

To restore the favourable conservation condition of Otter in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. FCS target, based on 1980/81 survey findings, is 88% in SACs. Current range in south-west estimated at 74.5% (Bailey & Rochford 2006)
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 103ha above high water mark (HWM); 1165.7ha along river banks/ around ponds	No field survey. Areas mapped to include 10m terrestrial buffer along shoreline (above HWM and along river banks) identified as critical for otters (NPWS, 2007)
Extent of marine habitat	Hectares	No significant decline. Area mapped and calculated as 647.2ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (HWM) (NPWS, 2007; Kruuk, 2006)
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 599.54km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman & Chapman, 1982)
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 25.06ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (NPWS, 2007)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk, 2006; Kruuk & Moorhouse, 1991)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey & Rochford 2006) and wrasse and rockling in coastal waters (Kingston et al. 1999)
Barriers to connectivity	Number	No significant increase	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh & O'Neill, 2010). It is important that such commuting routes are not obstructed

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

3260 Water courses of plain to montane levels with the *Ranuncion fluitantis* and *Callitricho-Batrachion* vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranuncion fluitantis* and *Callitricho-Batrachion* vegetation in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat distribution	Occurrence	No decline, subject to natural processes	The full distribution of this habitat and its sub-types in this site are currently unknown. The basis of the selection of the SAC for the habitat was the presence of plant species listed in the Interpretation Manual (European Commission, 2007), recorded during the Natural Heritage Area (NHA) survey of the river (internal NPWS files). Further records of these and other aquatic plant species in the Blackwater can be found in Green (2008) and O'Mahony (2009). The dominant floating-leaved species appears to be the common and widespread stream water-crowfoot (<i>Ranunculus penicillatus</i> subsp. <i>penicillatus</i>) (Green, 2008, O'Mahony, 2009). No high conservation value sub-types are known to occur in the SAC and further survey is required to determine whether any such are present. Only one rare/threatened vascular plant species is known to occur in the SAC, the protected opposite-leaved pondweed (<i>Groenlandia densa</i>), which is abundant in the tidal stretches around Cappelquin (Green, 2008). Note: rooted macrophytes should be absent or trace (< 5% cover) in freshwater pearl mussel (<i>Margaritifera margaritifera</i>) habitat. The freshwater pearl mussel (1029) conservation objective takes precedence over this objective for habitat 3260 in this SAC, because the mussel requires environmental conditions closer to natural background levels
Habitat area	Kilometres	Area stable or increasing, subject to natural processes	The full extent of this habitat in this site is currently unknown. See above

Conservation objectives for: Blackwater River (Cork/Waterford) SAC [002170]

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

To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation in the Blackwater River (Cork/Waterford) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Hydrological regime: river flow	Metres per second	Maintain appropriate hydrological regimes	Due to regular disturbance (through variations in flow), river macrophytes rarely reach a climax condition but frequently occur as transient communities. A natural (relatively unmodified) flow regime is required for both plant communities and channel geomorphology to be in favourable condition, exhibiting typical dynamics for the river type (Hatton-Ellis and Grieve, 2003). For most of the sub-types of this habitat, high flows are required to maintain the substratum (see below) necessary for the characteristic species. Flow variation is particularly important, with high and flood flows being critical to the hydromorphology. Other aspects of hydrological regime, such as groundwater discharge are important for certain sub-types of the habitat, which may be present within the SAC
Hydrological regime: tidal influence	Daily water level fluctuations- metres	Maintain natural tidal regime	Tidal regime appears to be an important influence on the distribution of opposite-leaved pondweed (<i>Groenlandia densa</i>) in Ireland. The species is also typical of the tidal reaches of other large Irish rivers, e.g. the Slaney, the Suir and the Shannon (see Preston, 2003; Preston and Croft, 2001). Both the disturbance and substratum associated with the tidal regime may be important drivers
Substratum composition: particle size range	Millimetres	The substratum should be dominated by the particle size ranges, appropriate to the habitat sub-type (typically sands, gravels and cobbles)	The size and distribution of substratum particles is largely determined by the river flow. Different habitat sub-types and species have different substratum requirements. Opposite-leaved pondweed (<i>Groenlandia densa</i>) is typically found on silts (mud), and sometimes sands

Appendix B. Contractors Method Statement

Risk Assessment Method Statement (RAMS)

1. Project / Site Name:	Leaders Bridge	Job No:	J2327
Date RAMS Issued:	18/8/23	RAMS No:	09
Expiry Date (Max 6 Months)	6 months	Revision No:	00

Contractor / Sub-Contractor:	Cumnor Construction		
RAMS prepared by:	[REDACTED]		
Speciality:	Engineer		
Scope of works:	Water management, grouting & repointing to pier & abutment		
Expected Duration of works:	4 weeks		
Expected Start Date of Works:	T.B.C		
Start time / Finish Time:	08.00	17.00	
Restricted times on site:	17.00 – 08.00		

2. Declaration by RAMS Author:	Name:	Signature:	Date of Visit:
I have visited the site to assess the workplace hazards & risks and the site-specific requirements / controls required. (If Applicable)	[REDACTED]	[REDACTED]	16/8/23
Cumnor representative who attended the site assessment visit. (If Applicable)	[REDACTED]	[REDACTED]	16/8/23

//

	Name:	Signature:	Date:
Authorised & Vetted by?	[REDACTED]	[REDACTED]	16/8/23

(Note below to be amended if completed internally by CM / QS and SO)

Cumnor Site Management will evaluate and accept/reject the above RAMS using the Preliminary Health and Safety Plan where applicable and the Site Specific Health and Safety Plan (SSHSP) in accordance with the Safety Health & Welfare at Work Act 2005 and the Safety, Health and Welfare (Construction) Regulations 2013.

The Risk Assessment Method Statement (RAMS) Log and the master (Hard) copy of the approved RAMS, signed by all relevant operatives should be maintained in a prominent place on site within the Construction H&S Plan / Mobile H&S Plan, and must remain on site for the duration of the works. It is the responsibility of the Sub-contractor to ensure all operatives involved with the specific works, have the RAMS communicated to them and that they confirm through their signature that they understand and comply with the RAMS.

Risk Assessment Method Statement (RAMS)

3. Site Rules and Safety Notes:

1. All operatives will be Site Inducted on their first day on site and have a minimum of a valid Safe Pass card, as standard.
2. All works to be carried out within the agreed site boundary
3. All operatives will be required to wear the minimum P.P.E as follows: -
 - hard hats, hi-vis vests, safety boots, hearing protection, gloves, goggles/safety glasses and dust masks to be worn, if required
4. Permission maybe required to bring site vehicles / plant / materials onto site.
5. If required, all personnel will seek permission to enter any area where another trade may be operating.
6. Working hours to be strictly within specified site hours.
7. All plant operators to have relative and valid CSCS cards
8. All persons on site to follow the instructions of site management
9. If an operative feel work conditions are unsafe, then they are to **PAUSE** the job / stop works immediately and inform Site Management
10. Any site works areas to be set up will include safety barriers and signage around material storage zones.
11. Welfare facilities will be provided on site.
12. Main access route to site will be from the N72. Access / egress points are to be kept closed at all times and locked out of site hours. Keys will remain with Site foreman at all times
13. All deliveries/collections to site are to take place as per Cumnor Construction Ltd.'s Traffic Management Plan.
14. All vehicles are to abide by Cumnor Constructions Traffic Management Plan.
15. **Under no circumstances are delivery trucks or vans are to be left unattended at any time.**
16. Documentation and items to be kept on site at all times include; Medium first aid Box, fire extinguisher, Construction H&S Plan and Method Statements signed and dated by all involved in the works, Site Sign in / out Register

The above is a non-exhaustive list and is subject to change as conditions dictate

Assembly point to be agreed upon by site foreman prior to works commencing and all on site informed. Signage to be put in place to avoid confusion in the case of an emergency.

On approval, this RAMS shall be explained to all operatives and signed by all working parties prior to the works commencing.

Risk Assessment Method Statement (RAMS)

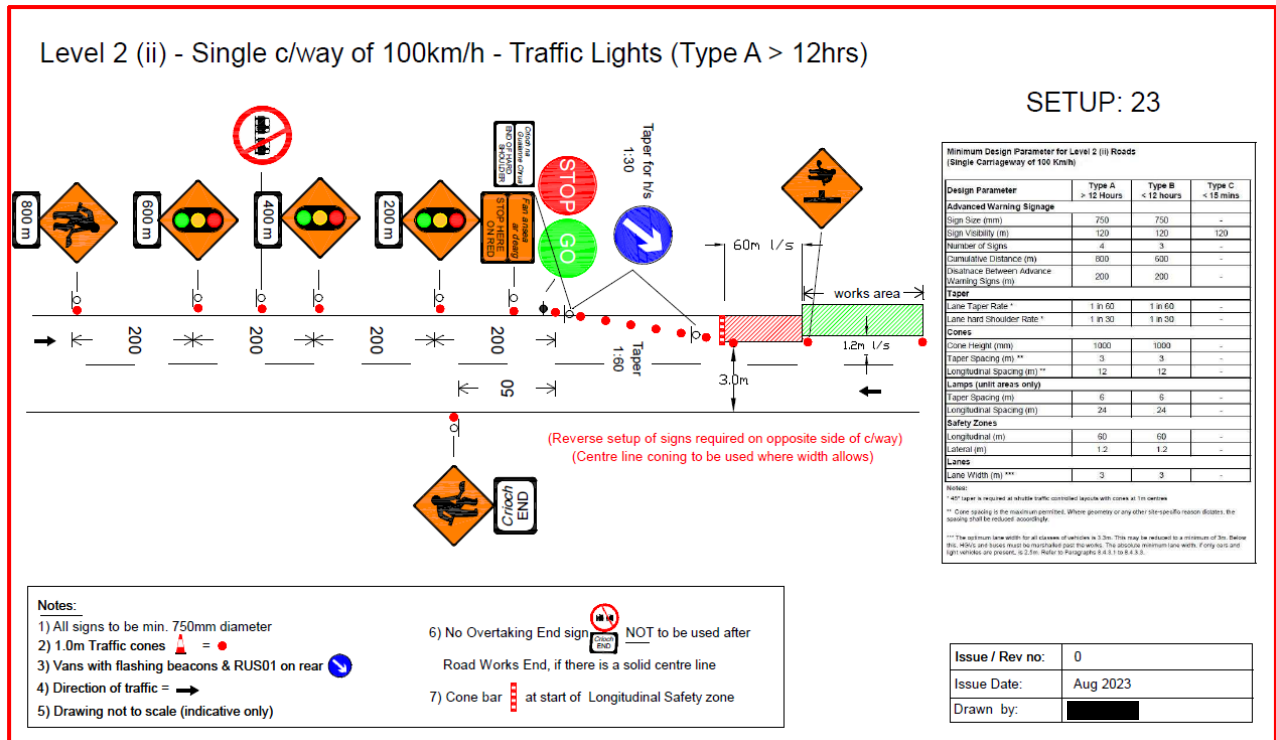
4. Methodology:

(Outline how the work will take place from arrival on site, to completion of works, step by step in detail to ensure no ambiguity).

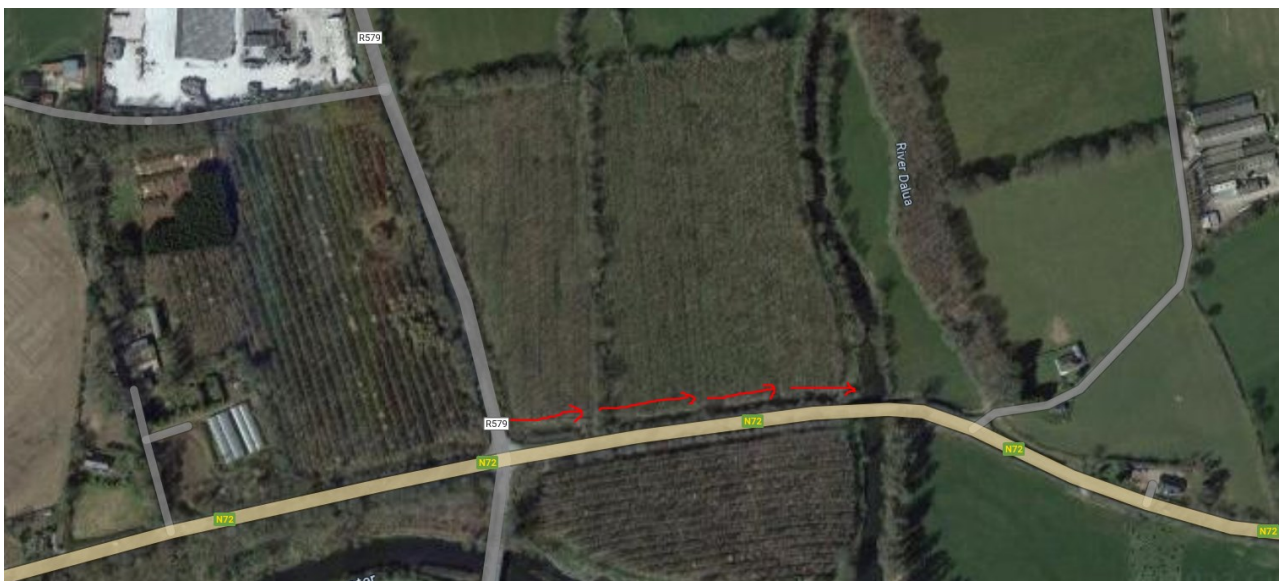
(Safety Rules / key Safety Points to be adhered to from Section 3.)

Traffic Management

- Traffic management will be set up as set out below for general works at this structure:



- Site vehicles will park within the temporary traffic management set up on the hard shoulder.
- The site access required route will be through a woodland area which leads to the riverbank, route is shown below:



Risk Assessment Method Statement (RAMS)

Ecological Notes

It is noted that this structure is within the Blackwater River (Cork/Waterford) SAC

The following environmental protection guidelines and associated measures shall be implemented during the works:

- NWPS Blackwater River (Cork/ Waterford) SAC – Conservation objectives supporting document - marine habitats
- Inland Fisheries Ireland’s Requirements for the Protection of Fisheries Habitat during Construction and Development Works.
- CIRIA (Construction Industry Research and Information Association) Guidance Documents
- Control of water pollution from linear construction projects: Technical Guidance (C648)
- Control of water pollution from linear construction projects: Site Guide (C649)
- Environmental Good Practice on Site (C692)
- TII (NRA) Guidance Documents
- Guidelines for the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads
- Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, during and Post Construction of National Road Schemes

Birds

All birds’ nests are protected by law. Nests which might be encountered under bridges include dipper and grey wagtail. The Dipper nests in closed / domed nests often located on supports under bridges. Kingfisher may also nest in sand banks close to bridges. Our ecologist will advise on general ecological questions as works progress. If a nest is discovered, the area is to be left undisturbed and ecologist advice should be sought. If a known nesting site would be impacted by proposed repair works, mitigation in the form of artificial nest boxes must be provided.

Invasive Species

Consideration must also be given to the potential occurrence of non-native invasive species, such as Japanese knotweed, Giant knotweed, Indian Balsam, Giant rhubarb, etc (as listed in the European Communities (Birds Natural Habitats) Regulations, 2011 (S.I. 477 of 2011)). Giant Hogweed, while an invasive non-native is also a significant health risk due to its phototoxic sap. If an invasive species is encountered an exclusion zone of 7m from visible plants should be marked and no works are to take place within this zone. Cumnor engineer should be informed who will in turn will inform the client.

Risk Assessment Method Statement (RAMS)

Covid 19 policies & procedures:

- Cumnor Construction Ltd has introduced a detailed Covid-19 policy which will become part of everyday action to inhibit the spread of Covid-19 throughout our community or communities which we are involved with.
- Each site will have a C19 Compliance Officer appointed to ensure social distancing guidelines, rules and policies are always maintained
- Wash hands using soap and warm water following the 20 second rule and drying sufficiently using disposable paper towels.
- If a worker feels unwell and has any of the following, notify your site supervisor immediately: Cough, Elevated Temperature, shortness of breath, runny nose.
- Additional PPE such as Dust masks, safety glasses, white suits and gloves are mandatory for close contact working and must be always worn.
- All tools used are to be cleaned and disinfected after use, and at any other times where tools may be shared between personnel on site. If possible, tools are not to be shared on site, but must be cleaned at the end of each day and prior to commencing work the following days
- Hand sanitizer will be provided to all workers on site.

Notes:

All works will be agreed with IFI prior to starting on site.

A toolbox talk will be issued to workers on site before works begin.

All fuels will not be stored on site.

Vikron spray will be used on tools & equipment prior to entering the watercourse.

Drip trays and spill kits will be stored on site.

Access to the works area below the structure shall be achieved through the existing manhole access.

Risk Assessment Method Statement (RAMS)

Sequence of works:

Site setup:

- Setup TTMP as per plan.
- Haul Road/ Crane pads
- Setup site compound in a location agreed with the client, land owner and local authorities if required.
- Setup water management.
- Repointing works.
- Grouting.
- Demobilise.

Traffic Management:

- Set up TTMP as per plan. The road will be reduced to one lane over the area of works for certain elements of the work.
- Traffic management should only be setup by a CSCS cardholder.

Haul Road/ Crane pads:

- Two no. haul roads will be required for crane access to allow the installation of water management both upstream and downstream of the structure.
- Two no. crane pads will need to be constructed at both locations also.
- The haul road to the NW side of the structure will also provide access to a site compound.
- Crane pad locations shown below:



- A survey of the ground conditions will be done before works commence to determine the construction method and required quantities of material for haul roads/ crane pads.
- The haul road should be suitable to support a crane and site vehicles.

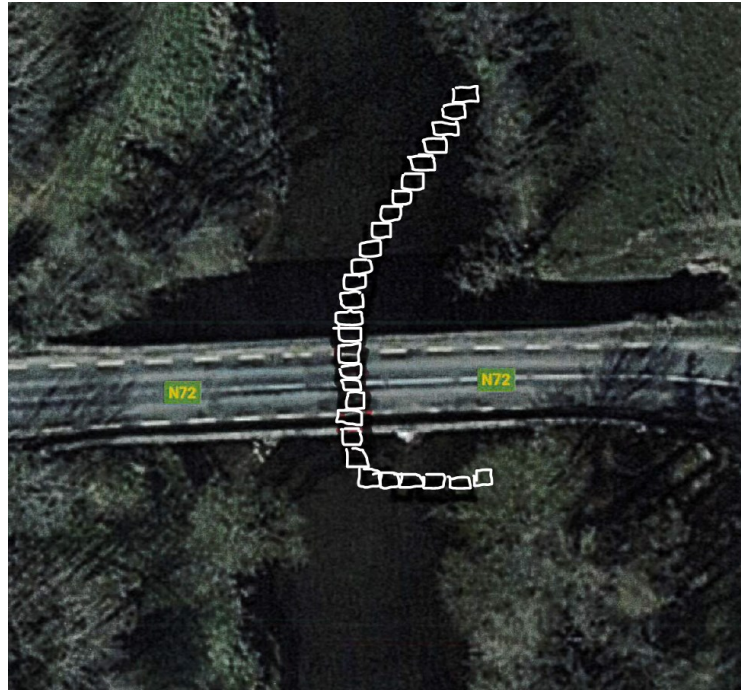
Site Compound:

- A site compound will be required on the NW side of the river.
- Once the haul road has been established an area will be fenced off using Herras Fences.
- Welfare facilities and a storage container will be kept in the compound.

Risk Assessment Method Statement (RAMS)

Water Management:

- IFI will be notified of the works prior to beginning on site.
- No works will be carried out if water levels are unfavourable.
- Life jackets to be worn by operatives working in the watercourse if the water level is deemed dangerous by site management. This will be monitored continuously.
- Vikron spray will be used on any plant, PPE or tools in or near the watercourse.
- The water management will be setup in a manner which will allow works to be done to the pier and the SE abutment under one setup.
- The crane will setup on the crane pad upstream of the structure.
- A lift plan should be provided by the Crane subcontractor and presented to the Resident Engineer before lifting operations begin.
- A banksman will assist the crane for lifting operations.
- Sealed 1-ton bags of sand will be delivered to site by truck.
- The crane will lift the bags individually off the truck and place them in the watercourse, starting at the upstream embankment and positioning them at a taper toward the bridge as shown below.



- Two general operatives will assist with the final positioning of the sandbags.
- Smaller hessian bags will be used to seal between the 1-ton bags where required.
- 1-ton sandbags may need to be double stacked depending on water levels at the time.
- The crane will continue positioning sandbags until it reaches the structure, at this point the crane will need to change location to the pad on the SE embankment to complete the water management downstream.
- Some trees may need to be limbed or removed if necessary to complete the works.
- Once the 1-ton sandbags have been installed and the water management is complete IFI will come on site to electrofish the works area.
- Once complete a 3" water pump will be used to de-water the works area.
- Once complete works can begin to the pier and abutment.

Risk Assessment Method Statement (RAMS)

Repointing abutment and pier:

- Repointing works to the abutments and pier may run simultaneously.
- These works can only be done in the dry.
- NHL5 lime will be used for repointing works.
- Stone masonry construction shall comply with the requirements of TII publication CC-SPW-02400 “Specification for Road Works Series 2400 - Brickwork, Blockwork and Stonework.
- Surface Finish of stone masonry shall be smooth and free from steps and undulations in the surface exceeding 30mm.
- Prior to commencement of all repointing and repair works, all vegetation and algae to be removed from face of walls and arch barrel soffits in accordance with the specification. All joints with mortar loss evident shall be repointed.
- Catch trays will be used to catch mortar droppings while repointing.
- All repointing shall be undertaken with lime mortar in accordance with the contents of CC-SPW-02400 and CC-SCD-02407. Repointing shall only be undertaken by stonemasons who have attended the TII approved ‘Masonry Arch Bridge Repair Workshop’ or are Members of the Guild of Master Craftsmen and their qualifications shall be submitted to the Employer’s Representative for approval.
- Mortar and repointing existing masonry work shall be NHL5 lime mortar Mix Reference (a) in accordance with Table 24/4 of Series 2400 - Specification for Masonry Repointing.
- All mortar beds shall be of a thickness to match the adjacent stonework as closely as possible. Particular care shall be taken in respect of the finished appearance of the mortar joints in accordance with Clause 2456. Where no adjacent stonework exists, bed thickness and form shall be to the reasonable satisfaction of the Employer’s Representative. The colour of the mortar shall match the existing to the reasonable satisfaction of the Employer’s Representative.

Grouting to Pier:

- When repointing is complete grouting of the pier will begin.
- The traffic over the structure will be reduced to one lane and the grout pump will be setup on the carriageway over the structure.
- The grouting of the pier should be undertaken using a neat Portland cement grout.
- A grout pump will be setup on a drip tray for the duration of these works.



- An external water source will be used to supply water to the grout pump.
- Communication between the grouting operator and the grout pump operator to be via walkie talkie.
- The grout shall be finished recessed to the existing masonry and finished with NHL mortar pointing in order to preserve the historic appearance of the structure. The final strength of the grout shall not exceed that of the limestone masonry and shall be low in shrinkage and have a good flow rate for effective penetration.

Risk Assessment Method Statement (RAMS)

Demobilise:

- Remove water management.
- Remove crane pads.
- Remove site compound.
- Remove haul roads.
- Site clean-up.
- De-mobilise.

Risk Assessment Method Statement



Assessment Date:	18/8/23	Assessed By:	[REDACTED]	Assessment Review Period:	continuously
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Severity of Consequence (S)

1	Insignificant/minor first aid, no time off, no loss
2	Lost time, recoverable, (strain, sprain, laceration, dermatitis)
3	Temporary disability, recoverable (minor fracture, asthma, deafness, concussion)
4	Permanent disability, survivable (major fractures, amputation, head injuries, eye injuries, poisoning)
5	Causing death to one or more people (fatal injuries, occupational cancer, fatal disease/fire)

Likelihood (L)

1	Improbable
2	Low
3	Medium
4	High
5	Almost certain

Risk Level (R)

Low	1 - 4
Moderate	5 - 9
Considerable	10 - 14
High	15 - 19
Critical	20-25

Evaluation Matrix

Severity of Consequence	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
Likelihood						

Notes on completing the Risk Assessment below:

- A number of Hazards have been identified on the above mentioned site. Please confirm which may be applicable to your specific works on site. Each hazard is to be completed by entering Y/N in the end column and initial that you have read and understood. If specific relevant hazards have not been noted, the Contractor / Sub-Contractor is obliged to ensure those hazards, including a detailed risk assessment are included in the blank sections below. Additional space has been left if additional controls are required.
- If issues arise on site causing unforeseen and additional risks to those completing the works, that job or task will need to be **PAUSED** until such time that the Risk has been assessed and additional control measures are put in place and documented below reducing the risk associated with said works

Risk Assessment Method Statement



Ref:	Individual Activity Description	Hazards Identified	Persons / Groups at Risk	Risk level Before Controls			Risk Control Measures (Add as required)	Risk level Remaining After Controls			Applicable to job / task Y / N (Initial)
				S	L	R		S	L	R	
				1.	<ul style="list-style-type: none"> Use of Abrasive Wheels 	<ul style="list-style-type: none"> Eye / bodily injuries Injury to other person Noise induced hearing loss Damage to materials / services 		<ul style="list-style-type: none"> All Operators Members of the Public 	3	3	
2.	<ul style="list-style-type: none"> Access, egress to site and work areas 	<ul style="list-style-type: none"> Trip hazards, slipping causing a limb injury 	<ul style="list-style-type: none"> All Operators Members of the Public 	4	2	8	<ul style="list-style-type: none"> All access ways into site to be kept clear at all times Site housekeeping to be enforced to ensure the site is safe and organised 	4	2	2	Y

Risk Assessment Method Statement

3.	<ul style="list-style-type: none"> Use of a Banksman on Site 	<ul style="list-style-type: none"> Incompetence Trapped hands / feet Incorrect use of lifting gear Overloading Little or no Communication Injury to persons in public spaces Damage to adjacent buildings / materials 	<ul style="list-style-type: none"> All Operators Members of the public 	4	2	8	<ul style="list-style-type: none"> Use only authorised nominated and certified persons to sling loads & bank plant Understanding of hand signals is required Hands and feet are clear of load before any signal is given Only approved and certified lifting gear may be used Banksman must wear an orange, named hi vis top Radio communication must be used where visibility is restricted Strong gloves and steel toe capped boots are a must 	2	2	4	Y
4.	<ul style="list-style-type: none"> Using Cement and / or concrete on site 	<ul style="list-style-type: none"> Severe skin burns Falls of materials into excavations Manual handling 	<ul style="list-style-type: none"> All operators involved in the operation 	2	2	4	<ul style="list-style-type: none"> A MSDS (Material Safety Data Sheet) sheet must be available for materials used Appropriate PPE to be worn, including glasses for splashing, PVC gloves and wellingtons Washing facilities and first aid station to be provided for operatives Restrict time exposed to concrete Barriers / stop blocks to all excavations Suitable discharge area for concrete lorries Safe system of work in place documented and signed by all involved in the works 	1	2	2	Y

Risk Assessment Method Statement



5.	<ul style="list-style-type: none"> Dust on Site 	<ul style="list-style-type: none"> Visibility impairment for drivers causing collision Personal injury Silicosis Dust explosion 	<ul style="list-style-type: none"> Injury to operators on site Injury to members of the public 	4	2	8	<ul style="list-style-type: none"> Use equipment that produces minimal dust Issue PPE - dust masks, safety respirators 	2	1	2	Y
6.	<ul style="list-style-type: none"> Use of Electrics on Site 	<ul style="list-style-type: none"> Electrocution Damage to cables Overload causing a fire 	<ul style="list-style-type: none"> All operators Members of the public that may be in close proximity of the site 	2	4	8	<ul style="list-style-type: none"> All temporary routes for cabling must be set out beforehand and duct where possible All portable equipment must be P.A.T tested as per the General Application Regs 2007, part 3: Electricity – Reg 81 (as required) and certs kept on file All electrical appliances / tools must be visually checked by a competent person before each use Trailing cables must be tied overhead where possible and not interfere with access routes All electrical cabinets / boxes must be locked C02 temporary fire points must be strategically setup around site / buildings All electrical tools must be a maximum of 110volts Safe system of work in place documented and signed by all involved in the works 	2	2	4	N

Risk Assessment Method Statement

7.	<ul style="list-style-type: none"> Fires 	<ul style="list-style-type: none"> Bodily injury Spread of fire Property damage Potential death 	<ul style="list-style-type: none"> All operators Member of public in close proximity of the site 	2	4	8	<ul style="list-style-type: none"> No burning of materials anywhere on or around site permitted All gas bottles must be securely tied and have a Fire point (extinguisher) close at hand Any explosives are to be protected by close board sheeting Strategic fire points to be setup around site & through buildings Temporary fire escape layout plan & evacuation plan to be setup 	2	2	4	Y
8.	<ul style="list-style-type: none"> Lifting Equipment 	<ul style="list-style-type: none"> Dangers to operatives on site Fall of materials 	<ul style="list-style-type: none"> All operators Public in close proximity of site 	4	2	8	<ul style="list-style-type: none"> All lifting equipment must be certified (GA1) and copies of certs kept onsite Only certified operators to use lifting plant, e.g. cranes, MEWP's etc Lifting equipment to be checked and recorded in GA2 weekly Any damaged or worn slings / chains must not be used and disposed of Temporary barriers must be placed around lifting / sluing areas Safe system of work in place documented and signed by all involved in the works 	1	4	4	Y

Risk Assessment Method Statement



9.	<ul style="list-style-type: none"> Lone Person working on site 	<ul style="list-style-type: none"> Personal injury to operative and / or illness 	<ul style="list-style-type: none"> Lone Worker 	4	2	8	<ul style="list-style-type: none"> Where possible, do not use a lone worker setup Operators must have mobile communication and check in to their supervisor at agreed times Lone workers must be on a site or location where others are in the vicinity 	2	2	4	Y
10.	<ul style="list-style-type: none"> Manual Handling of materials on site 	<ul style="list-style-type: none"> Injury to back Lower limb injury Arm & Hand injuries 	<ul style="list-style-type: none"> All operators 	4	2	8	<ul style="list-style-type: none"> All operatives are trained in manual handling. Use of mechanical aids to lift items where possible, e.g. cable block / teleporter/ Hi-ab Use of two employees to lift awkward or heavy items Frequent stretching of the back is encouraged to all employees who are constantly bending. 	4	1	4	Y
11.	<ul style="list-style-type: none"> Noise 	<ul style="list-style-type: none"> Damage to hearing Affecting members of the public 	<ul style="list-style-type: none"> All operators Members of the public in close proximity to the ongoing works 	4	2	8	<ul style="list-style-type: none"> PPE must be worn when there is a noise level is above 80dBA Earplugs to be worn at low level noises Ear muffs to be worn when operators are using tool/plant that have a high noise level Operators are not to be exposed to excessively loud noises for extended periods If possible use other plant and tools that do not have a loud noise level 	2	2	4	Y

Risk Assessment Method Statement

12.	<ul style="list-style-type: none"> Operating Plant on Site (Excavator) 	<ul style="list-style-type: none"> Dangers to other operatives on site Overturning of excavator Overhead Services Underground Services Injury to driver and others including death 	<ul style="list-style-type: none"> Operator Operatives on site Members of the public 	4	4	12	<ul style="list-style-type: none"> Area to be excavated to be CAT scanned for services by ticketed operator. Drawing and plans to be checked also. Dial before you dig to be consulted. Operators must be CSCS certified and trained to use plant Safety signage to be in place No unauthorised passengers permitted on plant. All plant must have flashing beacons and audible sirens Care to be taken when reversing and sluing Unattended excavator must have the engine switched off and keys out Extra care to be taken where sloping surfaces are being driven Do not overload machinery to their stated capacity All other operatives to remain outside the exclusion zone. Operator must track on the designated access route as required Spotter to be in place at all times 	1	4	4	Y
13.	<ul style="list-style-type: none"> Operating Tools on site 	<ul style="list-style-type: none"> Cuts / Lacerations Long term deafness Nerve injuries 	<ul style="list-style-type: none"> All operators using tools on site 	4	2	8	<ul style="list-style-type: none"> Wear appropriate PPE to include ear defenders and safety glasses / goggles Only 110volt (max) permitted on site Erect sound barriers as required Restrict length of time for use, e.g. mainly vibrating / oscillating tools (check tool specs) Do not leave tools running 	2	1	2	Y
14.	<ul style="list-style-type: none"> Refuelling 	<ul style="list-style-type: none"> Fire / environmental pollution 	<ul style="list-style-type: none"> All operators involved in the refuelling task 	2	2	4	<ul style="list-style-type: none"> All fuels to be stored off site. No refuelling to take place in the vicinity of a watercourse Fuel tanks must be double skinned and banded with lockable valves Spillage kits must be in close proximity of all tanks and within waste lorries Any spillages must be reported immediately to the Site Supervisor / Safety Manager 	1	2	2	Y

Risk Assessment Method Statement

15.	<ul style="list-style-type: none"> Setting out of Traffic Management 	<ul style="list-style-type: none"> Injury to operator on site by moving vehicles Injury to members of the public that may be in close proximity of 	<ul style="list-style-type: none"> All operators Members of the public 	2	4	8	<ul style="list-style-type: none"> Install traffic management as per plan issued Ensure signage and cones are as per approved plan Operators with CSCS cards to setup traffic management system and inspect on a weekly basis or as required Safe system of work in place documented and signed by all involved in the works 	1	3	3	Y
16.	<ul style="list-style-type: none"> Preventing unauthorised access to area of works 	<ul style="list-style-type: none"> Injury to unauthorised person on site Damage to plant / equipment and materials 	<ul style="list-style-type: none"> All operators on site Unauthorised person on site 	2	3	6	<ul style="list-style-type: none"> All site visitors are inducted prior to being in work areas Operators to notify site management of any unauthorised access to site immediately Site gates to be closed at all times and locked and checked at close of business <p>All required signage in place notifying public of works in the area</p>	2	2	4	Y

Risk Assessment Method Statement



17.	<ul style="list-style-type: none"> Vibration 	<ul style="list-style-type: none"> Numbness & tingling of fingers / hands Nerve & muscle damage to fingers / hands White finger (VWF) Arm vibration (AV) 	<ul style="list-style-type: none"> All operators involved in the works 	2	2	4	<ul style="list-style-type: none"> Allow only competent persons to use tools Refer to individual vibration / exposure limits Wear full PPE to include anti-vibration gloves as required Reduce length of times using tool Use tools with low vibration Safe system of work in place documented and signed by all involved in the works 	1	2	2	Y
18.	<ul style="list-style-type: none"> Working in bad weather conditions 	<ul style="list-style-type: none"> Operators being injured as a result of the bad weather 	<ul style="list-style-type: none"> All operators 	3	3	9	<ul style="list-style-type: none"> When there are poor weather conditions all work to stop immediately, foreman to make call if carrying out work is unsafe 	3	1	3	Y

Risk Assessment Method Statement

19.	<ul style="list-style-type: none"> Working over water 	<ul style="list-style-type: none"> Drowning Upper body injuries Death of fish life 	<ul style="list-style-type: none"> All operators 	3	4	12	<ul style="list-style-type: none"> PPE to include life vests, flotation devices and drag lines as conditions dictate or where no edge protection in place AF4 to be completed weekly Temporary decks with heavy gauge polythene and catch nets to be used where working under bridges All plant and tools to be placed in water course to be steam cleaned prior to use Safe system of work in place documented and signed by all involved in the works 	2	3	6	Y
20.	<ul style="list-style-type: none"> Vermin and bird droppings 	<ul style="list-style-type: none"> Contact with droppings may cause illness and irritations to operative 	<ul style="list-style-type: none"> All operators involved in works 	3	3	9	<ul style="list-style-type: none"> Suitable PPE to be worn at all times. including full disposable overalls. Gloves to be disposed of after each use – do not re-use gloves / dust masks / disposable suits. Hands to be washed before eating food, or touching your face as bird droppings may contain 'Salmonella' (a bacterial infection causing severe diarrhea). All breaks are to be taken away from the areas contaminated by bird droppings to avoid cross contamination. Dampen down the bird droppings with water to prevent the creation of dust from the droppings. Excessive bird droppings can cause a build-up of insects, which can transmit diseases and other infections, so the use of insect repellent is required if this is the case. 	2	2	4	Y
21.	<ul style="list-style-type: none"> Working at Height 	<ul style="list-style-type: none"> Fall of materials and operatives 	<ul style="list-style-type: none"> Operators on site Public in close proximity 	4	4	16	<ul style="list-style-type: none"> Existing fall / edge protection to be certified within 12 months, or after alterations before works take place. Existing fall / edge protection to be checked prior to commencement of works each day to ensure safety of all Tool box talk on 'Working at Height ' to be issued prior to commencement on site Edge protection is not to be interfered with unless you are certified to do so All materials are to be stored correctly upon the roof to ensure materials cannot be blown off the roof in strong winds 	1	4	4	Y

Risk Assessment Method Statement

5. Emergency Contact Details:

Site First Aider



Name: [REDACTED]
Tel: [REDACTED]

Location of First Aid

There is a first aid station set up within the building however, the site foreman will have a medium sized first aid box with appropriate signage in the vicinity of the works.

A First Aid box can always be located in a Cumnor Site Vehicle

Local Hospital (A&E)

Name: Mallow General Hospital
Address: Mallow, Co. Cork
Tel: 022 21251

Local Garda Station

Name: Mallow Garda Station
Address: Mallow, Co. Cork
Tel: 999/112

Local Fire Brigade Station

Name: Mallow Fire Station
Address: Mallow, Co. Cork
Tel: 999 / 112

Other useful numbers

ESB	1850 928960 (Dial before you dig)
ESB (Emergency)	1850 372 999
GAS	1850 427747 (Dial before you dig)
GAS (Emergency)	1850 205050
Eircom	1901 (Dial before you dig)






6. Training Required – *Specific to this Site*

1. Safe Pass (Mandatory)
2. Manual Handling (Mandatory)



Risk Assessment Method Statement

7. P.P.E. (Personal Protective Equipment) (Specific to this site and relating to the information contained in this RAMS)

<u>P.P.E (Personal Protective Equipment) - Specific to this Site</u>					
 Safety Boots To include Ankle support EN ISO 20345:2011 CE S3 SRC Wellingtons EN ISO 20345:2011 S5 SRA	 Hard Hats EN397 EN50365	 Safety Gloves EN 388 levels 4- 1-2-1 or 2-1-2-1 Safety Gloves (grey type for vegetation removal) EN 388:2003	 Hearing Protection (for all drilling works, demolition and cutting works) Surefit Ear defenders (for noisy work) EN 352-3:2002 Earplugs (disposable) EN 253-2:2002	 Eye Protection (for all drilling works, demolition and cutting works) Goggles (cutting works) EN 166:2001 Glasses (standard for light cutting) EN 166:1995	Other: Hi-Vis vest / jacket - double banded EN ISO 20471 3m Dust mask EN 14387:2004

8. Material Delivery, Storage and Distribution

(Outline safe arrangements for traffic management, delivery, offloading and secure storage – if applicable). Include a step by step sequence on how you will perform the task (Include sketch, drawings & photographs if required.)

- 1.
- 2.
- 3.
- 4.

Risk Assessment Method Statement

9. Anticipated Waste Control and Disposal Arrangements (If Applicable) *Cumnor must be notified of waste leaving site*

- 1.
- 2.
- 3.
- 4.
- 5.

Number of Person's Anticipated on site:	5			
Will any of your workforce be non-English speaking or reading:	Yes		No	n

How will the contents of this RAMS be communicated to your non-English speaking workforce:

10. Permits Required – Type









High Risk Activities	Work Permit Required

Risk Assessment Method Statement

11. Hazardous Substances

Please identify any hazardous substances you will be using or potentially encountering on site

Circle applicable

							
Toxic	Explosive	Asbestos	Corrosive	Hazardous to the environment	Flammable	Pressurised Gas	Other
YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO	YES / NO

Please list any applicable substance below and attach relevant Safety Data sheets:

- 1.
- 2.
- 3.
- 4.
- 5.

Please identify details of emergency response to; Spill, Escape and combustion

- 1.
- 2.
- 3.
- 4.
- 5.

12. Temporary / Permanent Works Design Certs

Any Required please list below (If Applicable)

Risk Assessment Method Statement

13. Work Specific Emergency & Rescue Procedures

Please outline Emergency Rescue Procedures to include details of equipment required and where it can be located

- 1.
- 2.
- 3.
- 4.
- 5.

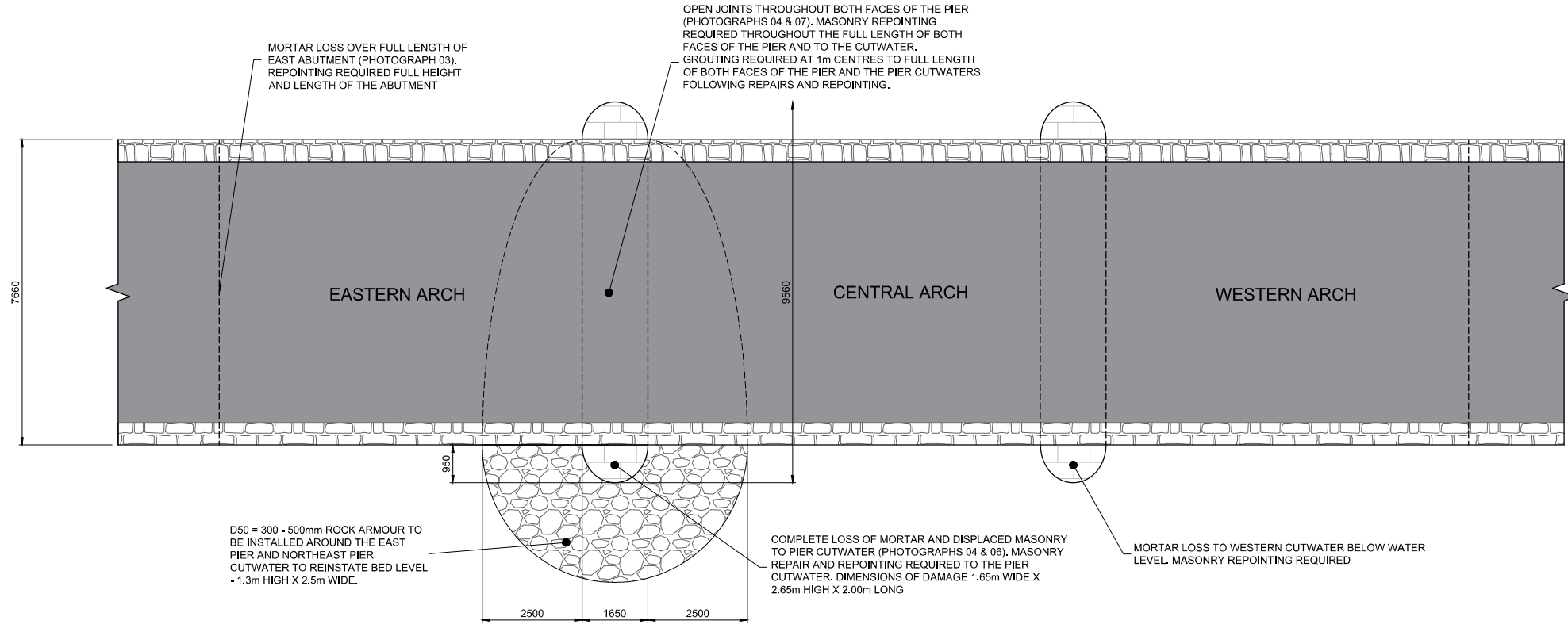
Briefed to: (by signing below I confirm that I have been briefed and understand the Risk Assessment Method Statement for this Job / Task).

No.	Name (Print)	Signature	Date	Company Name
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Witnessed by (Supervisor): I confirm that all personnel who are involved in the task covered by this set of RAMS, have had these RAMS explained to them. Any future operatives to be assigned to this task will also receive communication of these RAMS.

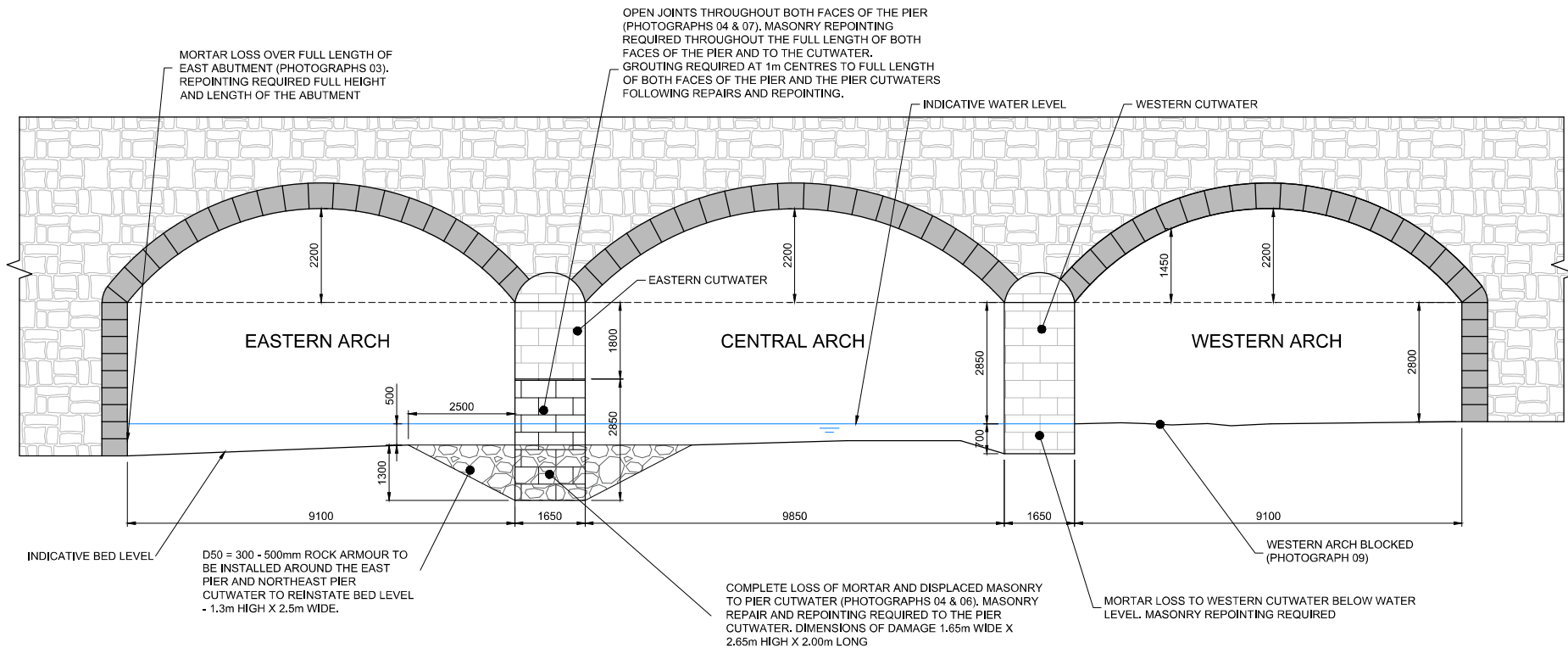
Name:		Signature:	
Title:		Date:	

Appendix C. Design Drawings



PLAN

Scale at A1 1:75
Scale at A3 1:150



NORTH ELEVATION

Scale at A1 1:75
Scale at A3 1:150

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

DRAWING NOTES

6. PRESSURE GROUTING WILL BE USED TO FILL THE VOIDS BEHIND THE STONEMASONRY AT THE PIERS.
7. THE GROUT TO BE USED IS NHL GROUT AND ALL JOINTS ARE TO BE FINISHED USING NHL MORTAR. THE FINAL STRENGTH OF THE GROUT SHALL NOT EXCEED THAT OF THE LIMESTONE MASONRY AND SHALL BE LOW IN SHRINKAGE AND HAVE A GOOD FLOW RATE FOR EFFECTIVE PENETRATION.
8. WORKS AREAS SHALL BE DEWATERED FOR THE DURATION OF THE WORKS.
9. FOR PHOTOGRAPHS OF EXISTING BRIDGE, REFER TO DRAWING 5219386-ATK-Z1-XX-SK-CE-901002

Purpose ISSUED FOR TENDER

Title LEADERS BRIDGE (CC-N72-010.00) REACTIVE MAINTENANCE NORTH ELEVATION & PLAN

Original Scale	Des/Drawn	Checked	Authorised
1:75			
Date	Date	Date	Date
12/06/23	13/06/23	13/06/23	13/06/23

Status	Drawing Number	Rev
P	5219386-ATK-Z1-XX-SK-CE-901001	A

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Rev	Description	By	Date	Chk'd	Auth
A	ISSUED FOR TENDER	RMS	06/23	VD	MJ
-	ISSUED FOR REVIEW	RMS	05/23	VD	MJ

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