

N77 Ballyragget Village to Ballynaslee Road Improvement Scheme, Co. Kilkenny



Screening for Appropriate Assessment Report

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Tait Business Centre, Dominic Street, Limerick City, Ireland.
t. +353 61 313519, f. +353 61 414315
e. info@ecofact.ie
w. www.ecofact.ie



SUMMARY

The current document is a Screening for Appropriate Assessment Report for the proposed N77 Ballyragget Village to Ballynaslee Road Improvement Scheme located in Co. Kilkenny. The proposed scheme will involve a junction upgrade for the Glanbia factory with a carriageway and verge widening, as well as c. 700m realignment. The effective length of the scheme is ca. 2.4km. This report assesses whether the proposed development is likely to have a significant effect on the Natura 2000 site network.

The proposed N77 Ballyragget to Ballynaslee Road Improvement Scheme is located adjacent to both the River Barrow and River Nore SAC and the River Nore SPA. Therefore pathways for impacts exist and these sites were considered further in relation to potential impacts arising from the proposed development.

Although the footprint of the proposed road scheme is not located within the boundary of the SAC, the potential for direct impacts on Otters associated with the SAC were identified, as the scheme is as close as c. 30m to the River Nore in some parts. Indirect water quality impacts may arise during construction which could potentially significantly affect Freshwater Pearl Mussel. This species is designated as part of the SAC and is extremely sensitive to changes in water quality. The potential for non-native invasive species impacts was also identified. It is considered that there would be a positive impact during the operational phase as the drainage design will provide attenuation with infiltration for road run-off, including bypass petrol interceptors, which currently do not exist on the existing stretch of the N77. Although no Kingfisher, the only qualifying interest of the River Nore SPA, are likely to be present in the study area due to a lack of suitable habitat and the presence of the existing road, it is acknowledged that the potential for impacts exist specifically due to potential operational phase water quality impacts that require mitigation.

Water quality protection measures will be required during both the construction phase and operational phase of the development due to the sensitivity of the receiving water and the conservation interests of the SAC, as well as potential impacts on Kingfisher within the SPA. It is concluded that the proposed N77 Improvement Scheme does require a Natura Impact Statement (Appropriate Assessment).



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1. INTRODUCTION

The current document provides a Screening for Appropriate Assessment report of the proposed N77 Ballyragget to Ballynaslee Improvement Scheme in Co. Kilkenny. This report assesses whether the proposed works at this location is likely to have a significant effect on the Natura 2000 site network. Effects upon the conservation objectives and qualifying interests (including habitats and species) within the affected designated areas are considered.

Appropriate Assessment is required under Article 6 of the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (1992) or the Birds Directive (2009). This report assesses whether this development is likely to have a significant effect on the Natura 2000 site network. Effects upon the conservation objectives and qualifying interests (including habitats and species) within the affected designated areas are considered. The current document meets this requirement by providing a Screening Assessment of the development and follows the guidance for screening published by the Department of the Environment, Heritage and Local Government (DoEHLG 2010) '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*'.

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive:

- (1) Whether a plan or project is directly connected to or necessary for the management of the site, and;
- (2) Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

The current Screening Assessment therefore sets out to determine whether the proposed project, alone or in combination with other plans and projects, is likely to have significant effects on the Natura 2000 sites within the study area.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). When assessing the significance of potential effects, DoEHLG (2010) recommends that "*a precautionary approach is fundamental and, in cases of uncertainty, it should be assumed the effects could be significant*".

1.1 Consultation

The following bodies provided information for this report, via publically available sources:

- National Parks and Wildlife Service (NPWS);
- National Biodiversity Data Centre (NBDC);
- Environmental Protection Agency (EPA).

Correspondence was also issued to the National Parks and Wildlife Service (NPWS) and Inland Fisheries Ireland (IFI) on the 4th of September 2018. Mitigation was requested by both NPWS and IFI for the proposed road scheme and therefore will not be included in the current Screening for Appropriate Assessment Report; instead the responses are included in the Natura Impact Statement.



1.2 Legislative context

Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora - '*The Habitats Directive*', has been transposed into Irish law by The European Community (Natural Habitats) Regulations 1997 (S.I. No. 94/1997).

The 1997 Regulations were updated in 1998 by The European Communities (Natural Habitats) (Amendment) Regulations 1998 (S.I. No. 233/1998) to include Council Directive 97/62/EC which served to update Council Directive 92/43/EEC, adapting it to technical and scientific progress made in the intervening years.

The 1997 Regulations were again updated in 2005, by The European Communities (Natural Habitats) (Amendment) Regulations 2005 (S.I. No. 378/2005). This amendment served to consolidate the main nature conservation legislation enacted in Ireland, meaning The Wildlife Act 1976, The Wildlife (Amendment) Act 2000, The European Communities (Natural Habitats) Regulations 1997, The European Communities (Natural Habitats) (Amendment) Regulations 1998, and to draw direct reference upon Council Directive (2009/147/EC) on the conservation of wild birds - '*The Birds Directive*'.

The Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs) whereas the Habitats Directive does the same for habitats and other species groups with Special Areas of Conservation (SACs). It lists certain rare habitats (Annex I) and species (Annex II) whose conservation is of community interest. It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected areas throughout the European Community.

Article 6, paragraphs 3 and 4 of the Habitats Directive state that:

'6(3) 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.'

6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.'

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.'

In case C-323/17 *People Over Wind and Peter Sweetman v Coillte*, the Court of Justice of the European Union (CJEU) ruled that mitigation measures could not be taken into account when undertaking a screening for Appropriate Assessment (AA). If mitigation measures are required to



reduce or avoid a significant adverse effect, then Appropriate Assessment is required. In the Screening for Appropriate Assessment Report for the proposed N77 road scheme, it was assessed that mitigation was required for potential water quality impacts affecting the SAC and SPA; therefore the proposed N77 road scheme will be subject to a NIS (AA).

In case C-461/17 *Holohan v An Bórd Pleanála*, the Court of Justice of the European Union (CJEU) ruled that the developer, under Article 5 of the Habitats Directive, was required to supply information in relation to the environmental impact both of the proposed project and of all the main alternatives studied by the developer (including any such alternative that had been rejected at an early stage), together with the reasons for his choice taking into account of the environmental affects. The proposed scheme design options have been modified and therefore the current Screening for Appropriate Assessment Report has been through various versions, with impacts re-assessed.

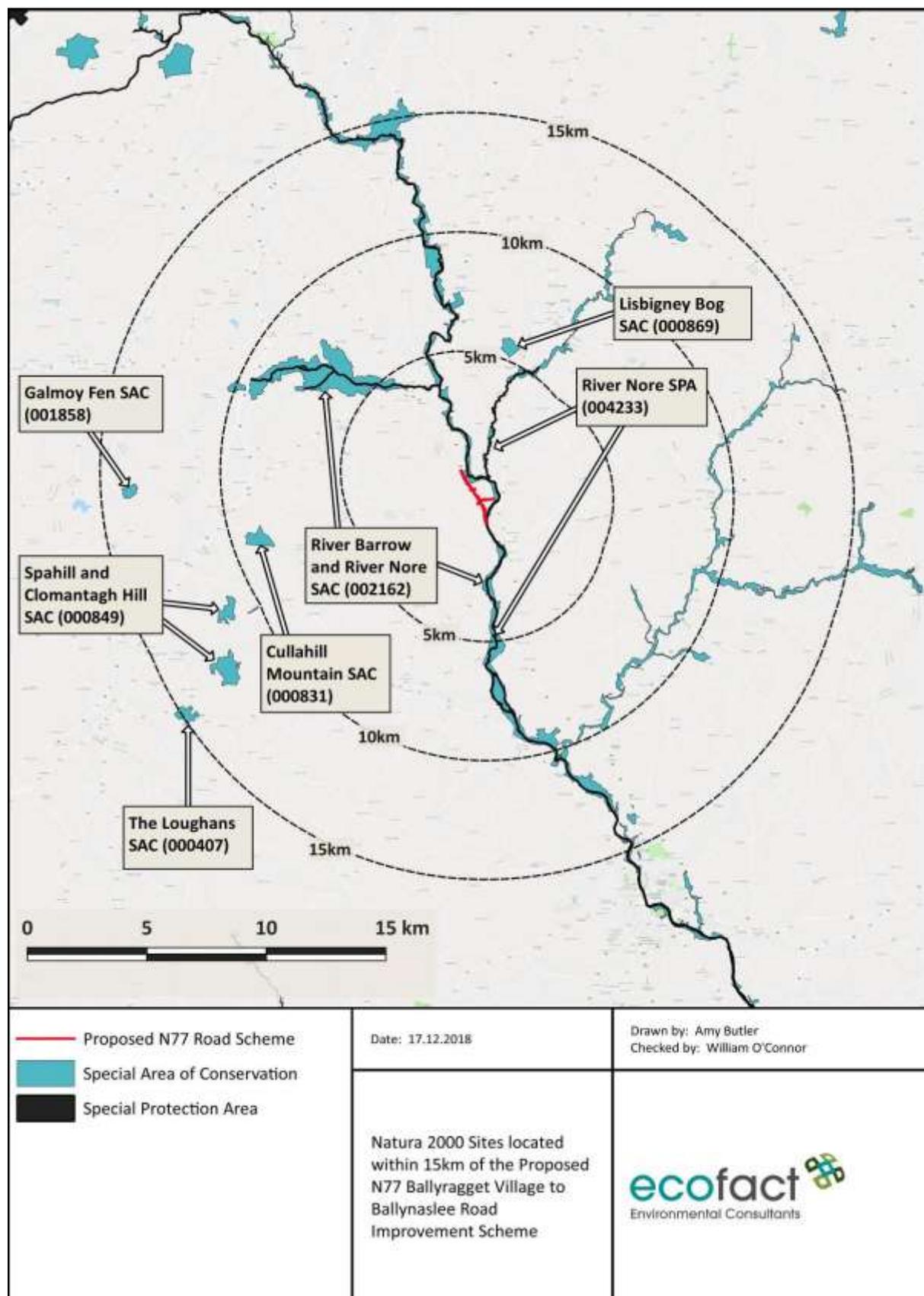


Figure 1 Natura 2000 sites located within 15km of the Proposed N77 Ballyragget Village to Ballynaslee Road Improvement Scheme.



2. METHODOLOGY

2.1 Desk study

A desktop study was undertaken to identify the extent and scope of the potentially affected designated Natura 2000 sites within the current study area in relation to the development site, including the River Barrow and River Nore SAC (Site Code: 002162) and the River Nore SPA (Site Code: 004233). The desktop study identified the qualifying interests (species and habitats) relevant to the designated sites within the area.

A review of published literature was undertaken in order to collate data on the receiving environment; a range of additional sources of information including scientific reports produced by, and information on the websites of the EPA, NPWS and the IFI were also reviewed. Information sources reviewed as part of the current assessment included NPWS site synopses, as well as protected species data held on the NPWS/NBDC online databases. A full bibliography of information sources reviewed is given in the reference section. Online aerial imagery was accessed to characterise the nature of proposed works locations near the Natura 2000 network.

2.2 Field Survey

The proposed development site was visited during December 2017. The length of the proposed scheme and environs were inspected for evidence of ecological features of high conservation concern such as those flora and fauna that occur in the closest Natura 2000 sites.

2.3 Assessment Methodology

The current Screening Assessment follows the guidance published by the Department of the Environment, Heritage and Local Government (DoEHLG 2010) '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*'. Based on these guidelines, the Appropriate Assessment process is a four staged approach described below:

Stage One: Screening / Test of Significance - the process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

Stage Two: Appropriate Assessment - the consideration of the impact of the project or plan on the integrity of the Natura 2000 site, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

Stage Three: Assessment of Alternative Solutions - the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and

Stage Four: Assessment Where Adverse Impacts Remain - an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

The current report is a Screening Report and therefore makes Stage One assessment only. According to DoEHLG (2010), screening can result in the following possible conclusions or outcomes:



AA is not required. Screening establishes that the plan or project is directly connected with or necessary to the nature conservation management of the site.

No potential for significant effects/AA is not required. Screening establishes that there is no potential for significant effects and the project or plan can proceed as proposed. However, no changes may be made after this as this will invalidate the findings of screening. Documentation of the AA screening process, including conclusions reached and how decisions were made, must be kept on file.

Significant effects are certain, likely or uncertain. The plan or project **must either proceed to Stage 2 (AA), or be rejected.** Rejection of a plan or project that is too potentially damaging and/or inappropriate ends the process and negates any need to proceed to Stage 2 (AA).

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. Thus, in line with the precautionary principle, it is unacceptable to fail to undertake an appropriate assessment on the basis that it is not certain that there are significant effects.

The approach to screening is likely to differ somewhat for plans and projects, depending on scale and on the likely effects. It is stated in DoEHLG (2010) that any Natura 2000 site within or adjacent to the proposed development area as well as any Natura 2000 sites within the likely zone of impact should be included for assessment. A distance of 15km is currently recommended by DoEHLG (2010) to loosely define the zone of impact in the case of plans but the distance could be much less than 15km, and in some cases less than 100m: this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects. In the case of the current project, where the proposed works are located within the River Barrow and River Nore SAC and the River Nore SPA, this Special Area of Conservation and Special Protection Area along with other Natura 2000 sites in close proximity and / or those with downstream hydrological connectivity have been considered.

When doing a screening it is **merely necessary to determine that there may be such an effect.** *'The threshold at the first stage of Article 6(3) is a very low one. It operates merely as a trigger, in order to determine whether an appropriate assessment must be undertaken on the implications of the plan or project for the conservation objectives of the site.'* (Finlay Geoghegan J. in *Kelly -v- An Bord Pleanála 2013/802 JR*). A significant effect is defined as "any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the site was designated, but excluding de minimis or inconsequential effects" (EHS, 2002; English Nature, 2004 & 2006; Scottish Natural Heritage, 2006). Where the potential for a significant impact is identified, or if there is any uncertainty regarding an impact, then an Appropriate Assessment must be completed to assess if this effect would cause an integrity level impact. At Appropriate Assessment stage mitigation can also be specified to reduce or avoid this effect. A screening assessment cannot replace the requirement of Appropriate Assessment so if any potential impact on qualifying interests or their habitats (e.g. siltation from works area during construction phase) is identified then Appropriate Assessment is required. Screening must be approached on a precautionary basis with the safeguards set out in Article 6(3) and (4) of the Habitats Directive triggered not by certainty - but by the possibility of significant effects.



3. DESCRIPTION OF PROJECT CHARACTERISTICS

The effective length of the proposed N77 Minor Scheme is 2.4km. The scheme includes a junction upgrade for the Glanbia factory, with carriageway and verge widening, as well as c. 700m realignment. Land take and hedgerow removal will be required as part of the proposed development.

A new drainage system is proposed for the scheme from ca. Ch1950 to ca. Ch3300, including the new realignment section. The system includes the provision of a road drainage bypass petrol interceptor which outfalls to an attenuation pond and adjacent soakaway area. Surface run-off from adjacent lands between ca. Ch2350 to ca. Ch2990 will be piped and discharged directly to a proposed spillway and grassed swale with wetland area. The gradient of the swale and wetland area are designed so as to promote the discharge of sediment from surface water run-off. Existing road drainage systems will be utilised on the northern and southern ends of the scheme, with the provision of new road drainage and bypass petrol interceptors as shown.

Project specific design drawings are indicated in Appendix 1.

4 IDENTIFICATION OF RELEVANT NATURA 2000 SITES

4.1 Rationale for Appropriate Assessment Screening

Article 6 assessments are required under the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (Special Areas of Conservation, here after referred to as SACs) or the Birds Directive (Special Protection Areas, here after referred to as SPAs).

Following the guidelines set out by DoEHLG (2010) Appropriate Assessment Stage 1: Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3); i.e. whether a plan or project can be excluded from Appropriate Assessment requirements because it is directly connected with or necessary to the management of the site; and the potential effects of a project or plan, either alone or in combination with other projects or plans, on a Natura 2000 site in view of its conservation objectives, and considering whether these effects will be significant.

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive:

- (1) Whether a plan or project is directly connected to or necessary for the management of the site, and;
- (2) Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

The proposed road improvement scheme near Ballyragget, Co. Kilkenny does not comply with the first screening test (i.e. the proposed works are not directly connected to or necessary for the management of any Natura 2000 site). The current Screening Assessment therefore sets out to determine whether the development, alone or in combination with other plans and projects, is likely to have significant effects on the Natura 2000 sites within the study area.



4.2 Natura 2000 sites considered for the proposed works

The location of the N77 Ballyragget to Ballynaslee Improvement Scheme in the context of the Natura 2000 network is indicated in Figure 2. Special Areas of Conservation (SAC's) are sites of international importance because of the presence of habitats or species that are of European importance, listed on the EU Habitats Directive (1992). Special Protection Areas (SPA's) for birds are designated based on the presence of internationally significant populations of bird species, listed in Annex I of the EU Birds Directive (2009).

Special Areas of Conservation (SAC) and Special Protection Areas (SPAs) considered in the current screening are listed in Table 1. The proposed N77 Ballyragget to Ballynaslee Road Improvement Scheme is located adjacent to the River Barrow and River Nore SAC (002162) and the River Nore SPA (004233). These sites will be considered further in relation to potential impacts arising from the proposed development.

The Lisbegney Bog SAC (Site Code: 000869) is located approximately 5.3km North-east of the proposed scheme. Cullahill Mountain SAC (Site Code: 000831) lies ca. 8.9km west and the Spahill and Clomantagh Hill SAC (Site Code: 000849) is located ca. 10.9km South-west of the development. In addition, The Loughans SAC (Site Code: 000407) and the Galmoy Fen SAC (Site Code: 001858) are located approximately 14.3km south-west and 13.5km east of the development respectively. These Special Areas of Conservation and Special Protection Areas comprise the Natura 2000 sites within 15km of the proposed N77 Ballyragget to Ballynaslee Improvement Scheme.

4.2.1 River Barrow and River Nore SAC

The River Barrow and River Nore SAC is selected for alluvial forests and petrifying springs, priority habitats on Annex I of the E.U. Habitats Directive, 1992. The site is also selected as a SAC for old oak woodlands, floating river vegetation, estuaries, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, dry heath and hydrophilous tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. As well as habitats, the SAC has been selected due to the presence of invertebrate, fish and mammal species which are listed under Annex II of the EU Habitats Directive, including freshwater pearl mussel (*Margaritifera margaritifera*), nore pearl mussel *M. durrovensis*, white-clawed crayfish (*Austropotamobius pallipes*), Atlantic salmon (*Salmo salar*), twaite shad (*Alosa fallax fallax*), the three Irish Lamprey species - sea (*Petromyzon marinus*), brook (*Lampetra planeri*) and river (*Lampetra fluviatilis*), the Desmoulin's whorl snail *Vertigo moulinsiana* and Eurasian otter (*Lutra lutra*). The riparian corridor and aquatic habitat of the River Nore supports a number of the qualifying interests of this Natura site. The qualifying interests of the River Barrow and River Nore SAC are presented in Table 1. The site synopsis for the River Barrow and River Nore SAC is included in Appendix 2.

4.2.1.1 Nore pearl mussel *Margaritifera durrovensis*

The stretch of the River Nore in the study area of the proposed scheme is within the distribution of the Nore Pearl Mussel. There are records from this stretch of river, and small numbers of large old individuals are thought to still occur here. The main population appears to be restricted to the section of main river channel from Poorman's Bridge (S 407 859) to Lismaine Bridge (S 442 660), with most of the population found between Poorman's Bridge and the Glanbia Factory above Ballyragget (S 440 722). There is a sub-basin management plan (NS 2, 2010) for the catchment area upstream of Ballyragget.



According to NS 2 (2010) “*The Nore pearl mussel has not reproduced successfully in the River Nore since 1970. Recruitment of juvenile mussels is being prevented by the poor quality of the river substrate resulting from excessive siltation and nutrient enrichment. The conclusion from these studies is that the single extant M. durrovensis population in the River Nore is un-viable and on the verge of extinction. The population is in unfavourable condition based on the freshwater pearl mussel regulations 2009. Expert opinion has indicated that the current 300 adult mussels cannot sustain M. durrovensis into the future and that significant efforts are needed to increase the size of the population. Assisted breeding has been identified as the only method by which the current population of 300 adult mussels can be increased in the medium to long term. As a result, adult mussels have been taken into captivity in an attempt to breed glochidia. A programme was set up in 2005, funded by the National Roads Authority and NPWS. In 2008 and 2009, female mussels in captivity successfully released live glochidia, a number of which attached to the gills of host fish. Juvenile mussels did not survive in the facility, so the location was moved in 2009, and currently live juvenile mussels have completed their first growing season. It is hoped that juvenile mussels will be translocated to suitable habitat within the Nore catchment, or held in captivity until conditions improve in the habitat. The objective is to create at least two viable, self-sustaining populations of M. durrovensis from mussels bred in captivity, each population totalling a minimum of 5,000 mussels. There is considerable urgency to identify potential receptor sites and to return them to favourable habitat condition and water quality*”.

Despite prognosis for the species in this stretch of the River Nore it has to be acknowledged that the proposed scheme is located adjacent to the sub-basin plan area. The adjoining stretch of river is therefore existing or potential mussel habitat and any works which have the potential to introduce silt or other pollutants into this stretch has to be assessed as working against the conservation objectives of the SAC. The trigger for an NIS here is therefore at a very low level.

4.2.2 River Nore SPA

The River Nore SPA is a long and linear site selected only for the conservation interest of the Annex I species Kingfisher *Alcedo atthis*. This site comprises the river channel and marginal vegetation in the River Nore. Other species which occur within the site include the Mute Swan, Mallard, Cormorant, Grey Heron, Moorhen, Snipe and Sand Martin.

Table 1 Summary details of the designated Natura 2000 sites within 15km of proposed N77 Ballyragget to Ballynaslee Improvement Scheme in Co. Kilkenny considered in the current screening.

Natura 2000 Site	Conservation Interests	Included in the current Screening Assessment (Yes/No)	Distance (km)
River Barrow and River Nore SAC (002162)	Estuaries [1130]	No potential for effects (geological separation, ca. 50.3km downstream)*	c. 10m East
	Mudflats and sandflats not covered by seawater at low tide [1140]	No potential for effects (geological separation, ca. 50.3km downstream)*	
	Reefs [1170]	No potential for effects (geological separation – at a minimum of c. 80km downstream)	
	<i>Salicornia</i> and other annuals colonising mud and sand [1310]	No potential for effects (geological separation – at a minimum of c. 72.3km downstream in the Suir)	



Natura 2000 Site	Conservation Interests	Included in the current Screening Assessment (Yes/No)	Distance (km)
		Estuary)	
	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330]	No potential for effects (geological separation – at a minimum of c. 72.3km downstream in the Suir Estuary)	
	Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	No potential for effects (geological separation – at a minimum of c. 72.3km downstream in the Suir Estuary)	
	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]	Yes (hydrological connection)	
	European dry heaths [4030]	No potential for effects (geological separation – terrestrial habitat, not located in study area or within footprint of the scheme – no construction or operational phase activities will take place anywhere near this habitat)	
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]	Yes (hydrological connection)	
	Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220]	No potential for effects (geological separation – at a minimum of c. 47.3km downstream)	
	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]	No potential for effects (geological separation - terrestrial habitat, not located in study area or within footprint of the scheme – no construction or operational phase activities will take place anywhere near this habitat)	
	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]	No potential for effects (geological separation - terrestrial habitat, not located in study area or within footprint of the scheme – no construction or operational phase activities will take place anywhere near this habitat)	
	Desmoulin's Whorl Snail (<i>Vertigo moulinsiana</i>) [1016]	No potential for effects (geological separation – located at its closest some c. 10km from the proposed scheme as the crow flies)	
	Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>) [1029]	Yes (hydrological connection)	
	White-clawed Crayfish (<i>Austropotamobius pallipes</i>) [1092]	Yes (hydrological connection)	
	Sea Lamprey (<i>Petromyzon marinus</i>) [1095]	Yes (hydrological connection)	



Natura 2000 Site	Conservation Interests	Included in the current Screening Assessment (Yes/No)	Distance (km)
	Brook Lamprey (<i>Lampetra planeri</i>) [1096]	Yes (hydrological connection)	
	River Lamprey (<i>Lampetra fluviatilis</i>) [1099]	Yes (hydrological connection)	
	Twaite Shad (<i>Alosa fallax fallax</i>) [1103]	Yes (hydrological connection)	
	Salmon (<i>Salmo salar</i>) [1106]	Yes (hydrological connection)	
	Otter (<i>Lutra lutra</i>) [1355]	Yes (hydrological connection)	
	Killarney Fern (<i>Trichomanes speciosum</i>) [1421]	No potential for effects (geological separation – located at its closest some c. 60km downstream – 5km from Inistioge, Co, Kilkenny)	
	Nore Pearl Mussel (<i>Margaritifera durrovensis</i>) [1990]	Yes (hydrological connection)	
River Nore SPA (004233)	Kingfisher (<i>Alcedo atthis</i>) [A229]	Yes (pathways for effects due to proximity to the SPA boundary)	c. 40m East
Lisbigney Bog SAC (000869)	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210]	No (No pathways for effects - geological separation)	5.3km North-east
	Desmoulin's Whorl Snail (<i>Vertigo moulinsiana</i>) [1016]	No (No pathways for effects - geological separation)	
Cullahill Mountain SAC (000831)	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210]	No (No pathways for effects - geological separation)	8.9km West
Spahill and Clomantagh Hill SAC (000849)	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210]	No (No pathways for effects - geological separation)	10.9km South-west
The Loughans SAC (000407)	Turloughs [3180]	No (Hydrological connection - ca. 36km upstream - no potential for effects)	14.3km South-west
Galmoy Fen SAC (001858)	Alkaline fens [7230]	No (No pathways for effects - geological separation)	13.5km East

*'Estuaries' and 'Mudflats and sandflats not covered by seawater at low tide' are dynamic habitats with naturally occurring levels of sediment. Taking into account the relatively small scale of the scheme, and that local construction water quality impacts are identified in the current report which will require mitigation in a NIS (AA) to protect local aquatic habitats and species, there is no potential for impacts on these habitats located this long distance downstream.

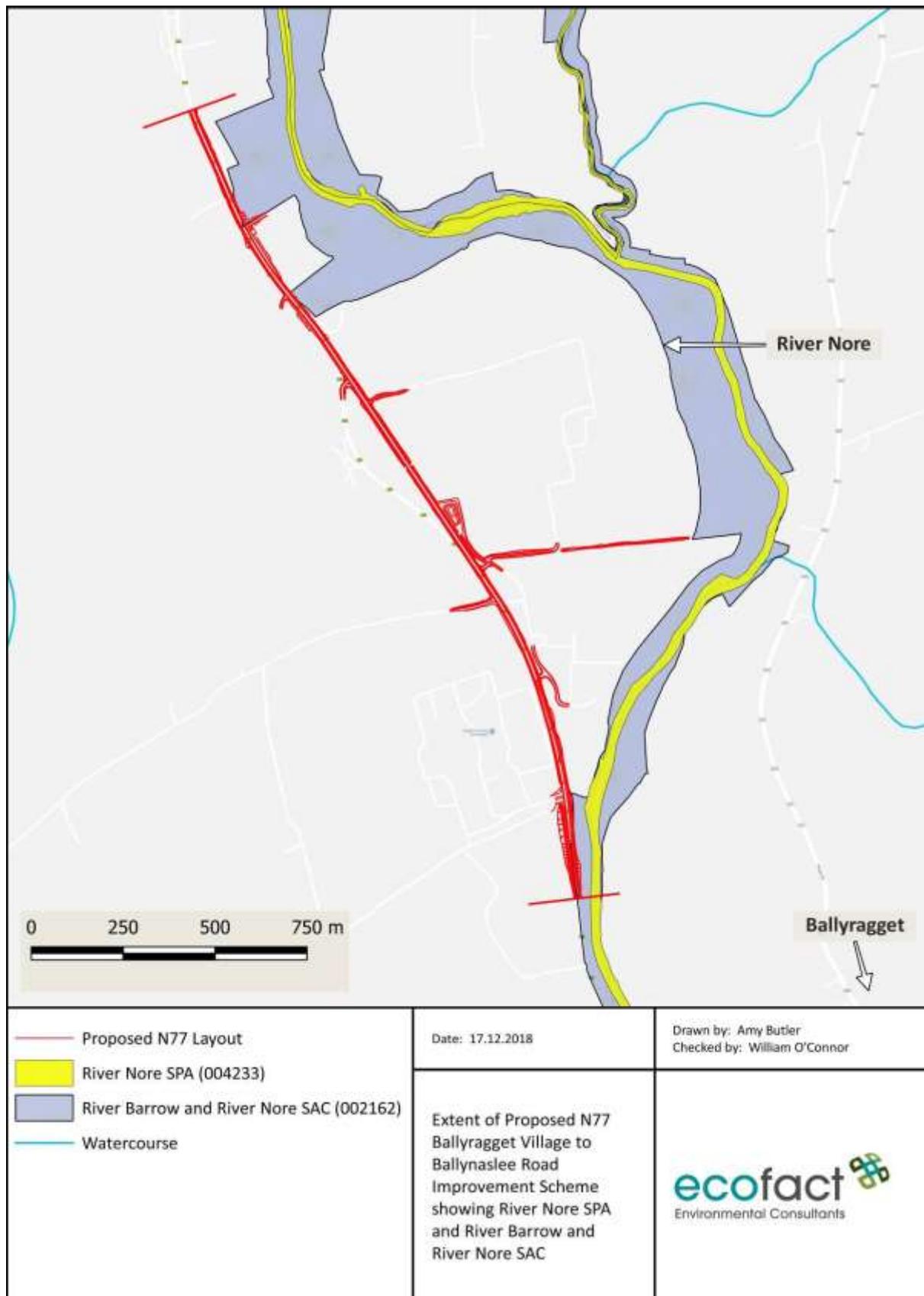


Figure 2 Extent of Proposed N77 Ballyragget Village to Ballynaslee Road Improvement Scheme showing River Nore SPA and River Barrow and River Nore SAC.



5. ASSESSMENT OF EFFECTS

The potential direct, indirect and cumulative impacts on Natura 2000 sites identified in section 4 resulting from the proposed N77 Ballyragget to Ballynaslee Improvement Scheme are discussed below.

5.1 Assessment of potential direct impacts affecting Natura 2000 sites

5.1.1 Construction Phase

Although the proposed N77 road improvement scheme is not located within any Natura 2000 site, it is located adjacent to the River Nore and the River Barrow and River Nore SAC, in some parts as close as c. 30m from the river. Therefore it must be recognised that there is the potential for impacts affecting the conservation interests of the River Barrow and River Nore SAC. Potential disturbance impacts may arise during the construction phase that could affect Otter, a feature of interest for the SAC. Although it is noted that the scheme is of a small scale and impacts are likely to be insignificant, the potential remains.

There will be no direct impacts arising from the proposed scheme that would have the potential to affect Kingfisher, designated within the River Nore SPA. This is due to the fact that all the proposed works are located outside the boundary of the SPA, the majority of the scheme is along the existing N77 road, the offline sections will cut through unsuitable habitat for Kingfisher and no suitable Kingfisher habitat was identified in the study area of the proposed road scheme.

5.1.2 Operational Phase

As the proposed road scheme is not located within the any Natura 2000 site, no potential for operational phase impacts are identified. The majority of the road scheme is along the existing N77 road and the small c. 700m realignment section is located c. 950m from the SAC boundary at its closest point.

For similar reasons noted above, it is considered that there is no potential for direct impacts to Kingfisher and the River Nore SPA arising from the operational phase.

5.2 Assessment of potential indirect impacts affecting Natura 2000 sites

Indirect (or secondary) impacts are defined as effects that are “caused by and result from the activity although they are later in time or further removed in distance, but still reasonably foreseeable” (Bowers-Marriott, 1997).

5.2.1 Construction Phase

The potential for indirect impacts during the construction phase are primarily related to water quality impacts affecting Freshwater Pearl Mussel and other aquatic species for which the River Barrow and River Nore SAC is designated. Water quality impacts may arise due to runoff of soil from denuded areas contributing to suspended solids, or pollution due to substances such as hydrocarbons (including fuels and lubricants), waste concrete and waste water. Any potential adverse impacts affecting the fluvial habitats upslope could be transferred to downstream areas via surface waters. As FPM are known to be located within close proximity to the proposed development area, there is the potential for water quality impacts to have a significant adverse effect on FPM populations within the SAC (NS2, 2010). Any deterioration in water quality can have serious implications for FPM and due to



the high sensitivity of this species; there is the potential for significant impacts affecting the conservation objectives of the SAC in the absence of mitigation. Construction phase water quality impacts affecting the River Nore would also affect Kingfisher in the SPA, and mitigation is required.

No significant indirect disturbance impacts on Kingfisher within the River Nore SPA during the construction phase are envisaged to arise. This is due to the fact that the scheme is located along an already existing road, with a small c. 700m realignment encroaching onto agricultural land. The proposed realignment section is located c. 900m from the SPA at its closest point. It is considered unlikely that Kingfisher would utilise this area, due to a lack of suitable habitat. As the area is already disturbed no significant indirect disturbance impacts are considered likely to arise.

Typically, road schemes can have the potential to introduce and / or spread non-native invasive species. It is noted that no non-native invasive species were observed during the current survey. Although it is assumed the NRA *'The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads'* guidelines will be followed, as part of the development is located in the SAC there is still considered to be the potential for non-native invasive species impacts with machinery coming from elsewhere potentially introducing non-native invasive species to the SAC and SPA.

5.2.2 Operational Phase

Currently the drainage from the existing N77 road does not undergo treatment before discharge to receiving waters. The new drainage designs will include treatment and attenuation as well as a new bypass petrol interceptor. For this reason, there is considered to be a positive impact arising from the operational phase of the proposed road scheme. This would affect both the conservation interests of the River Barrow and River Nore SAC and the River Nore SPA.

5.3 Assessment of potential cumulative impacts affecting the Natura 2000 site

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects (Bowers-Marriott, 1997).

The Freshwater Pearl Mussel Second Draft Nore Sub-basin Management Plan (NS2, 2010) identifies the key pressures affecting the status of FPM in the Nore Catchment. These pressures are as follows: sources of erosion (channel manipulation, animal trampling, land clearance), diffuse nutrients (from grazing, forestry, housing), diffuse silt (overgrazing, peat cutting, drainage, construction), barriers to migration (culverts, bridge aprons), outfalls and abstractions.

It is considered that the proposed development in combination with other activities in the catchment have the potential to have impacts on the conservation interests of the River Barrow and River Nore SAC and the River Nore SPA. For example, the proposed development has the potential to contribute to diffuse silt within the River Nore, which can affect water quality status in the study area. Although this development is of a small scale, due to the high sensitivity of FPM within the SAC, the potential cumulative impacts could be significant, in the absence of mitigation.



6. SCREENING STATEMENT WITH CONCLUSIONS

According to the guidance published by the DoEHLG (2010), Screening for Appropriate Assessment can either identify that an Appropriate Assessment is not required, where a project / proposal is directly related to the management of the site; or that there is no potential for significant effects affecting the Natura 2000 network; or that significant effects are certain, likely or uncertain (i.e., the project must either proceed to Stage 2 (AA) or be rejected).

The proposed development of the N77 Ballyragget to Ballynaslee Improvement Scheme has the potential to result in impacts on the qualifying interests of the River Barrow and River Nore SAC and the River Nore SPA. Although the scheme is not located directly within the SAC, direct impacts were identified regarding potential disturbance on Otter as part of the SAC. Indirect impacts on both the SAC and SPA are identified as water quality impacts that may arise during the construction phase of the proposed development. Given the sensitivity of FPM to changes in water quality, for which the River Barrow and River Nore SAC is designated, this impact has the potential to be significant in the absence of mitigation. As the proposed scheme is located adjacent to the River Nore, in some parts as close as c. 30m, there is the potential for non-native invasive species impacts and mitigation is required.

It is considered that the operation phase of the development will give rise to a positive impact as the new drainage designs will incorporate treatment and attenuation including a bypass petrol interceptor before discharge to receiving waters. Potential operational phase impacts on both the SAC and SPA were identified in relation to spillages on the new road leading to water quality impacts. Cumulative impacts are identified in relation to FPM and water quality and are considered to have the potential to be significant, in the absence of mitigation measures.

From examination of the information available, it is assessed that there is the potential for direct, indirect and cumulative impacts on the Natura 2000 network, specifically in relation to the River Barrow and River Nore SAC and the River Nore SPA. Therefore it is concluded that the proposed development does require a Natura Impact Statement (Appropriate Assessment).



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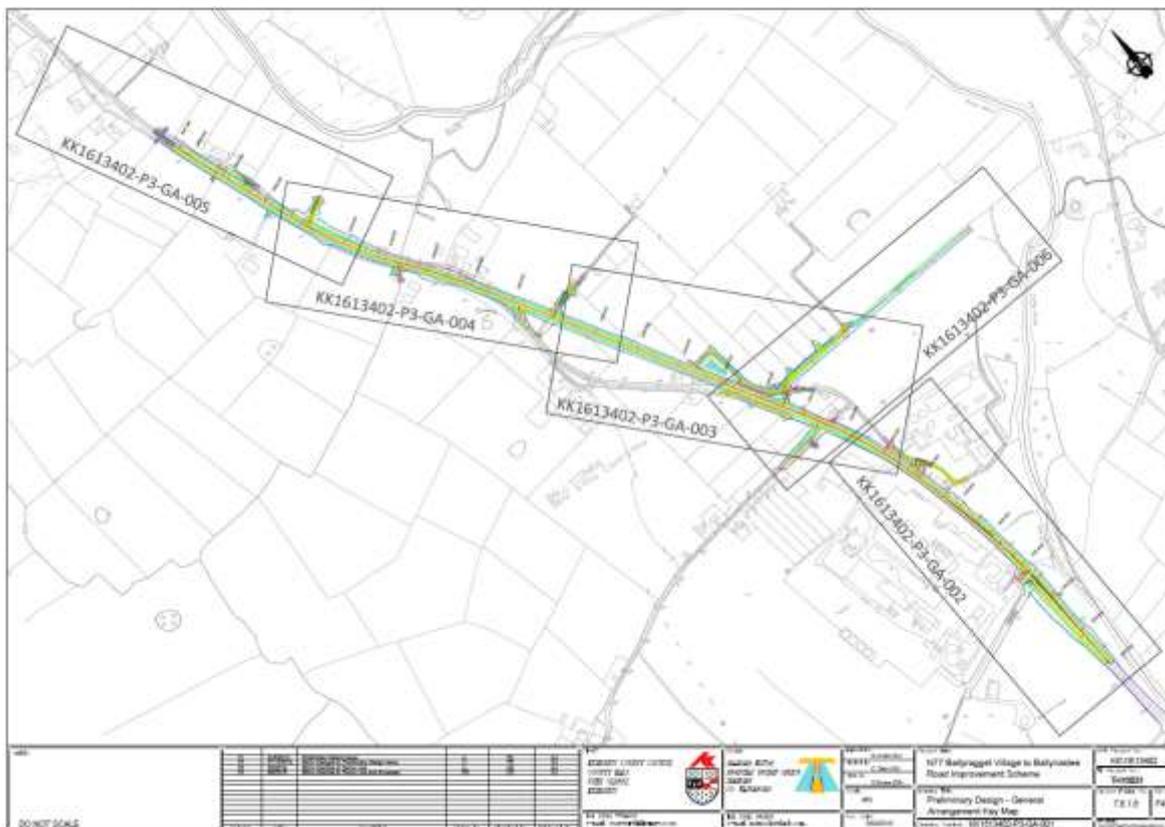
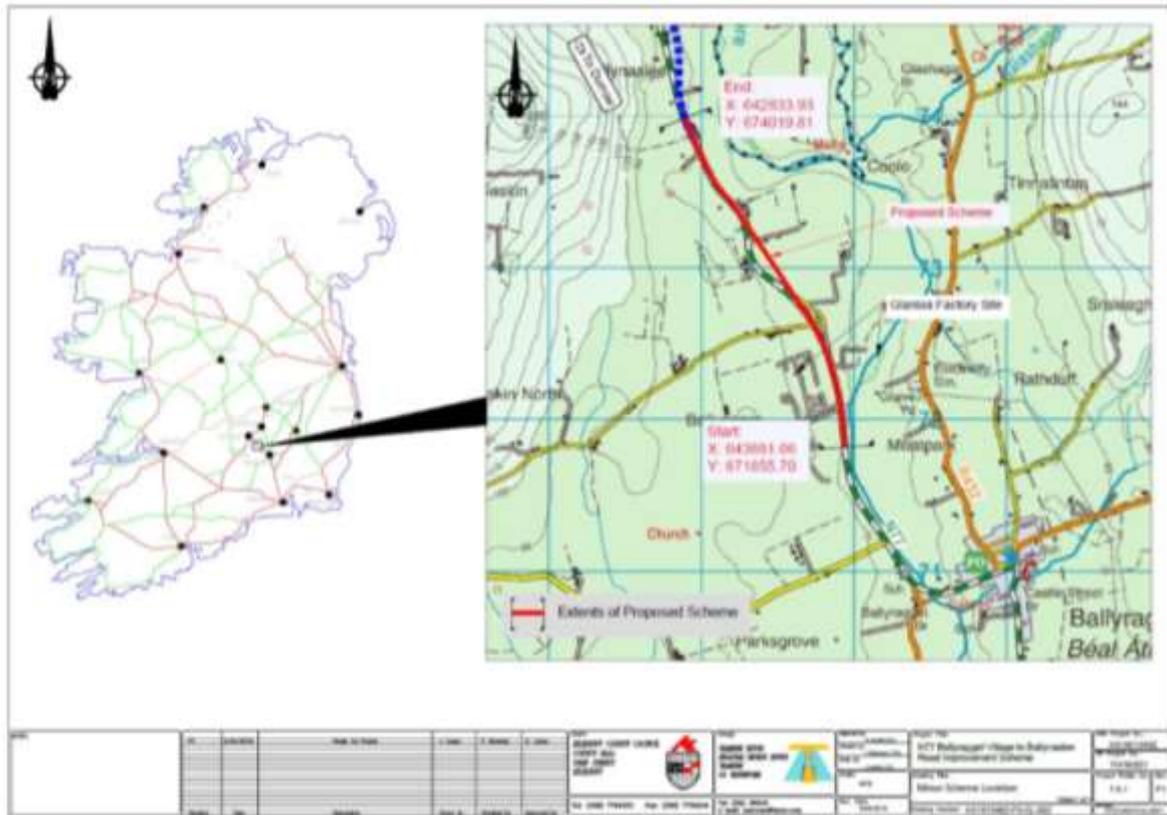
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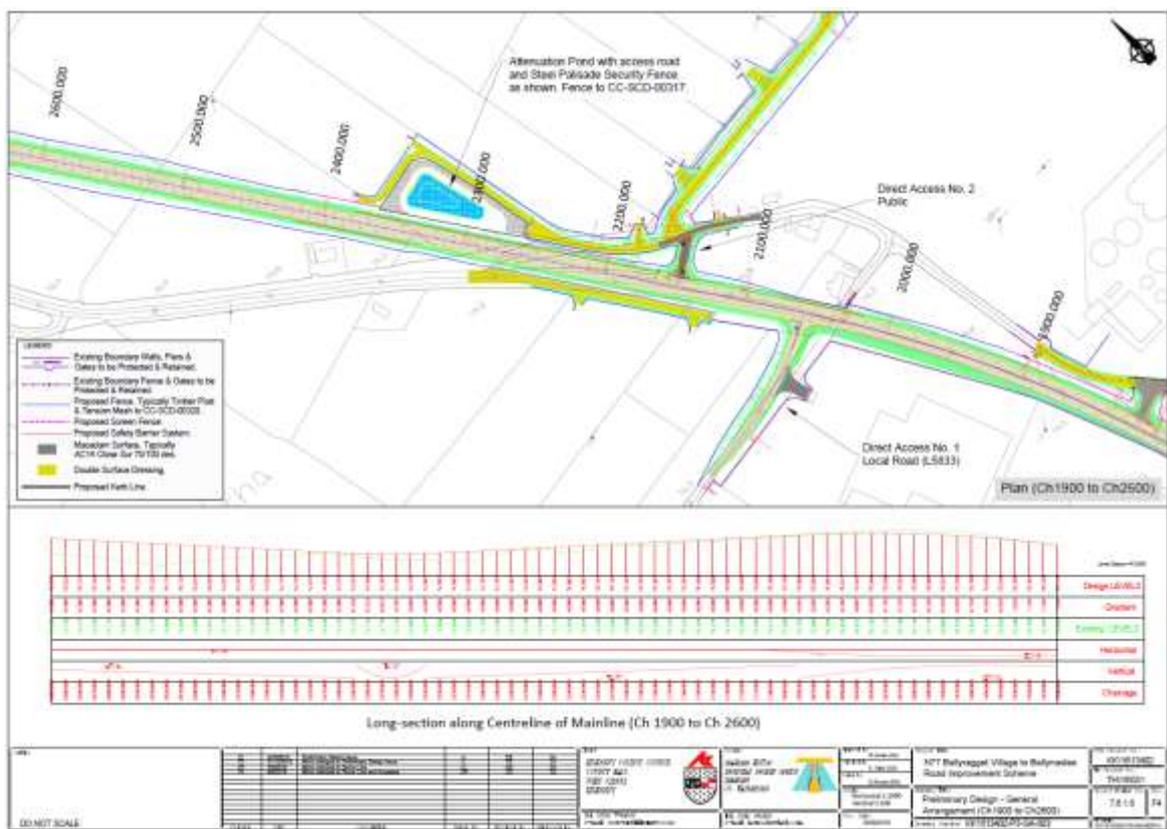
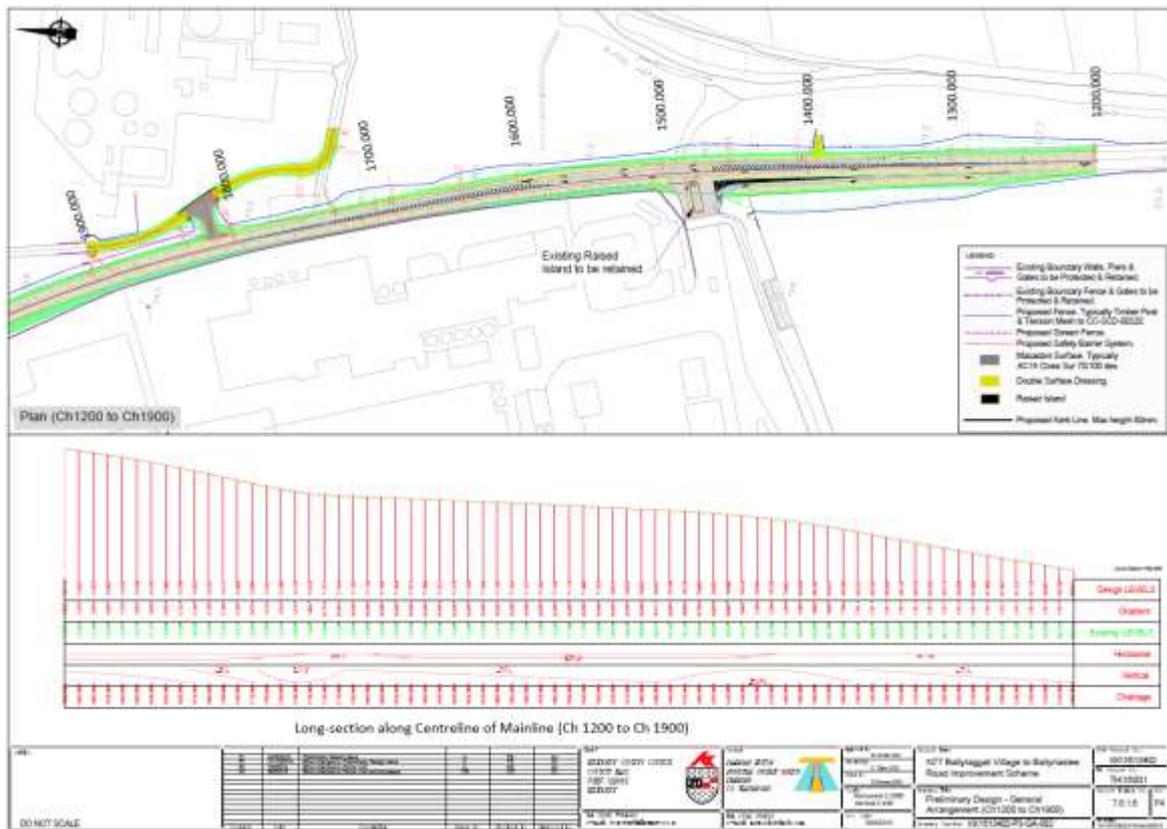
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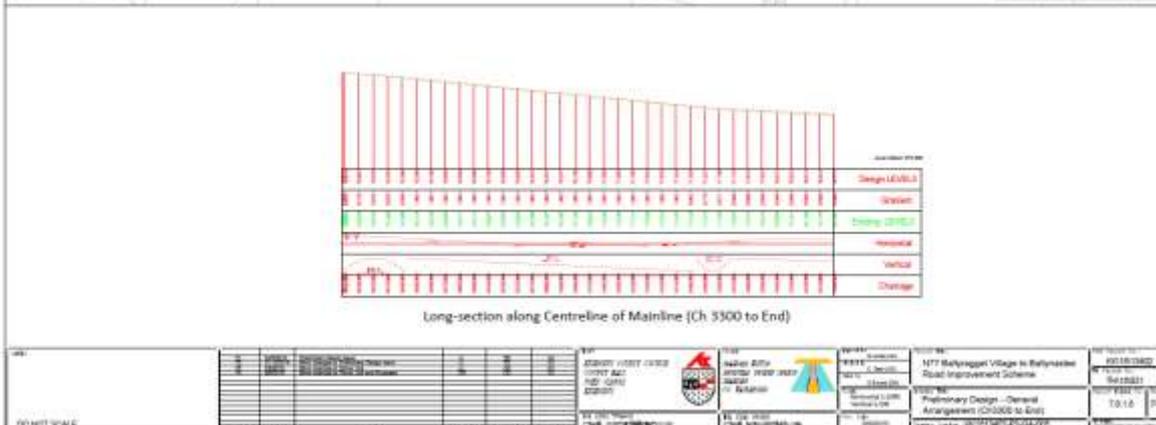
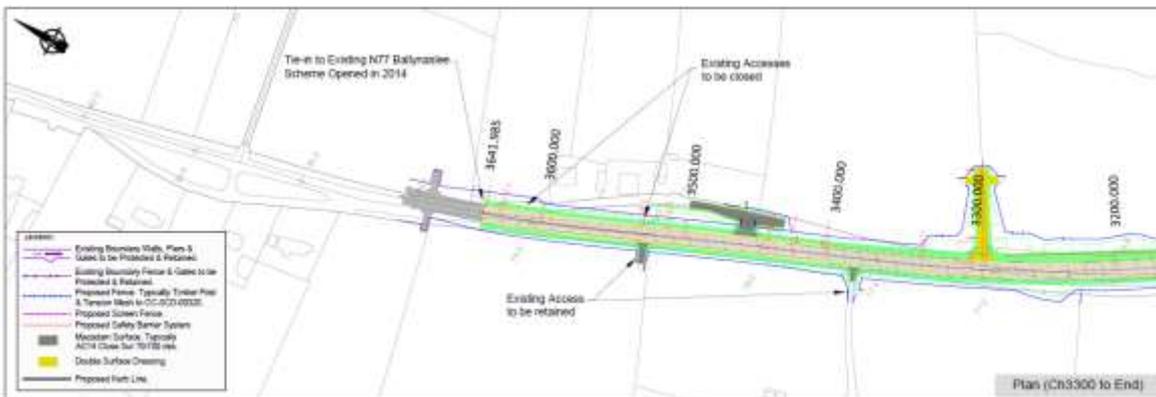
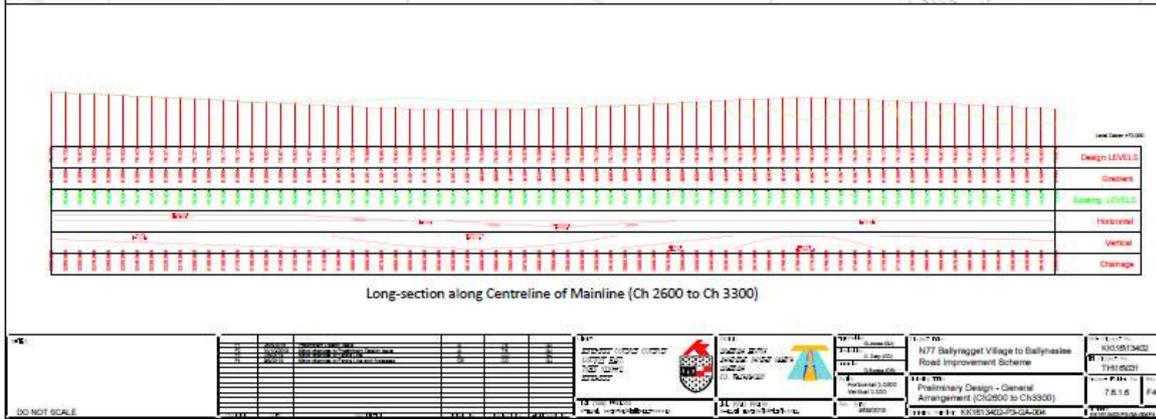
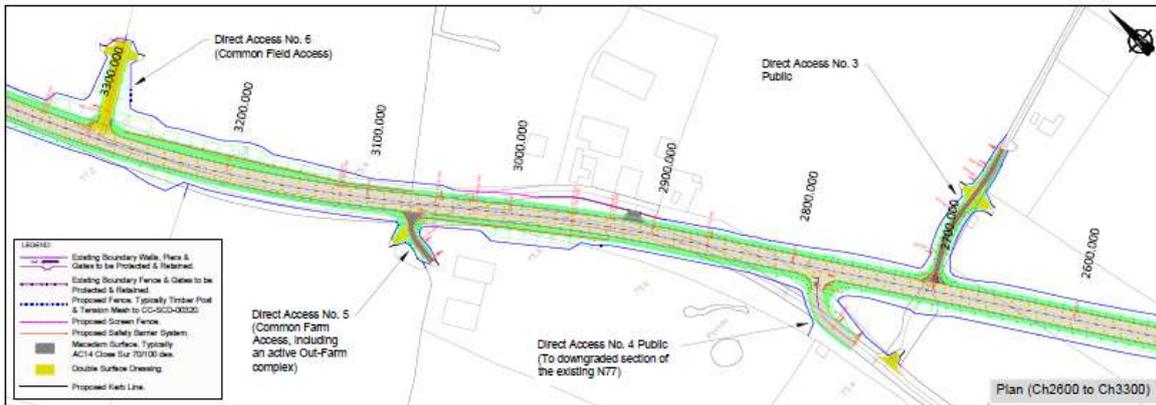
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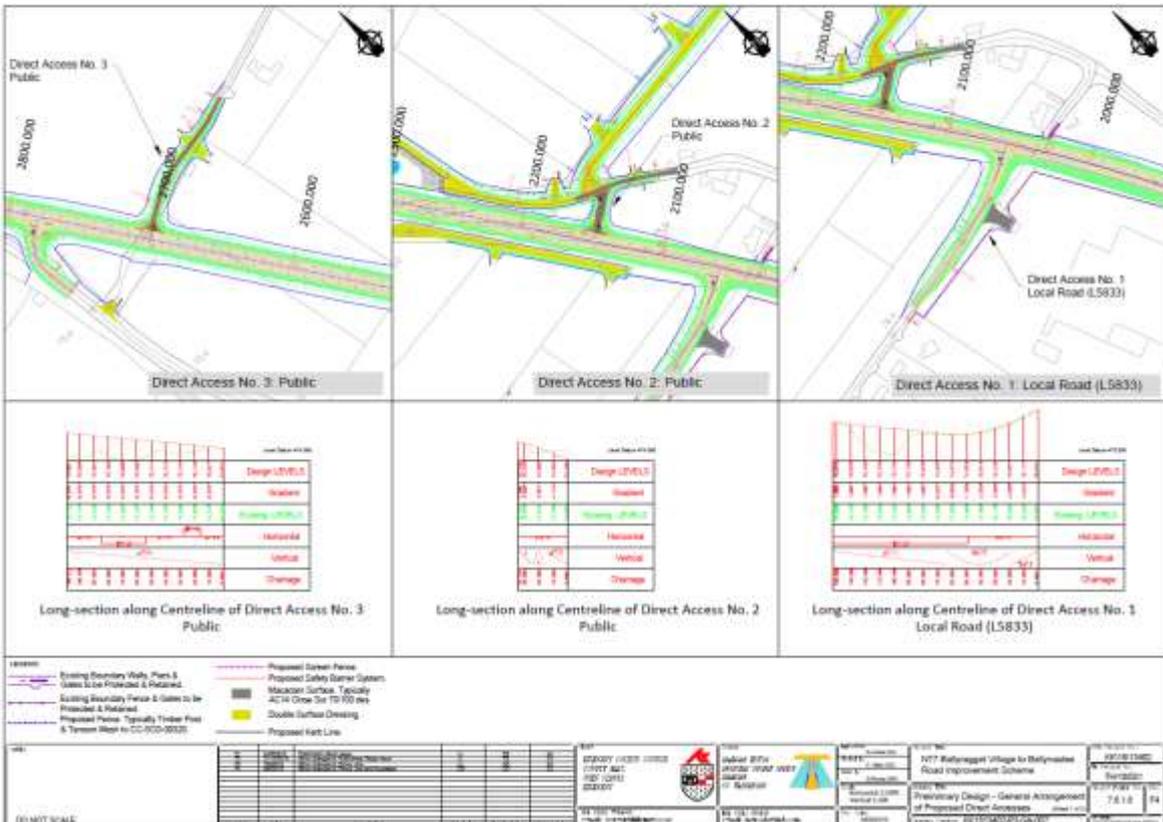
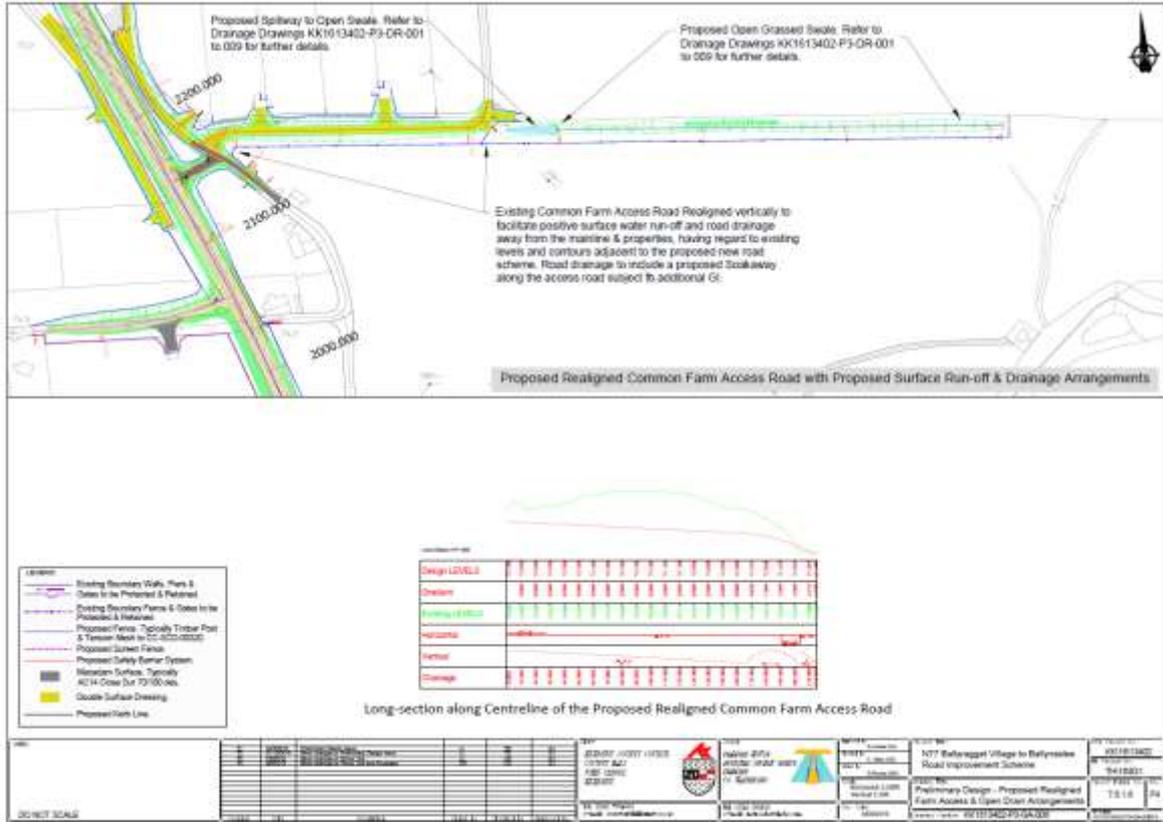


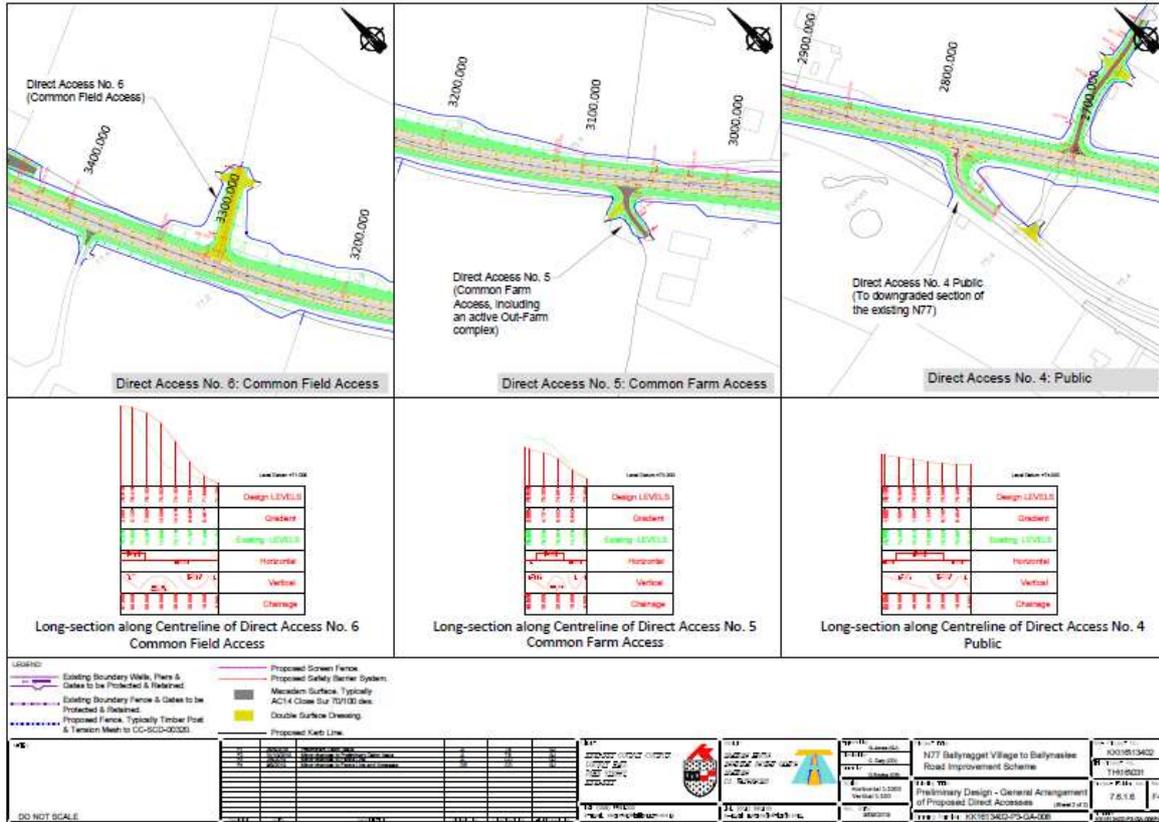
APPENDIX 1 PROJECT DRAWINGS













APPENDIX 2 NPWS Site Synopses

SITE NAME: River Barrow and River Nore SAC **SITE CODE: 002162**

This site consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site passes through eight counties – Offaly, Kildare, Laois, Carlow, Kilkenny, Tipperary, Wexford and Waterford. Major towns along the edge of the site include Mountmellick, Portarlinton, Monasterevin, Stradbally, Athy, Carlow, Leighlinbridge, Graiguenamanagh, New Ross, Inistioge, Thomastown, Callan, Bennettsbridge, Kilkenny and Durrow. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow, and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King's Rivers on the Nore.

Both rivers rise in the Old Red Sandstone of the Slieve Bloom Mountains before passing through a band of Carboniferous shales and sandstones. The Nore, for a large part of its course, traverses limestone plains and then Old Red Sandstone for a short stretch below Thomastown. Before joining the Barrow it runs over intrusive rocks poor in silica. The upper reaches of the Barrow also run through limestone. The middle reaches and many of the eastern tributaries, sourced in the Blackstairs Mountains, run through Leinster Granite. The southern end, like the Nore runs over intrusive rocks poor in silica. Waterford Harbour is a deep valley excavated by glacial floodwaters when the sea level was lower than today. The coast shelves quite rapidly along much of the shore.

Good examples of alluvial forest (a priority habitat on Annex I of the E.U. Habitats Directive) are seen at Rathsnagadan, Murphy's of the River, in Abbeyleix estate and along other shorter stretches of both the tidal and freshwater elements of the site. Typical species seen include Almond Willow (*Salix triandra*), White Willow (*S. alba*), Rusty Willow (*S. cinerea* subsp. *oleifolia*), Crack Willow (*S. fragilis*) and Osier (*S. viminalis*), along with Iris (*Iris pseudacorus*), Hemlock Water-dropwort (*Oenanthe crocata*), Wild Angelica (*Angelica sylvestris*), Thin-spiked Wood-sedge (*Carex strigosa*), Pendulous Sedge (*C. pendula*), Meadowsweet (*Filipendula ulmaria*), Common Valerian (*Valeriana officinalis*) and the Red Data Book species Nettle-leaved Bellflower (*Campanula trachelium*).

A good example of petrifying springs with tufa formations occurs at Dysart Wood along the Nore. This is a rare habitat in Ireland and one listed with priority status on Annex I of the E.U. Habitats Directive. These hard water springs are characterised by lime encrustations, often associated with small waterfalls. A rich bryophyte flora is typical of the habitat and two diagnostic species, *Palustriella commutata* and *Eucladium verticillatum*, have been recorded.

The best examples of old oak woodlands are seen in the ancient Park Hill woodland in the estate at Abbeyleix; at Kyleadohir, on the Delour, Forest Wood House, Kylecorragh and Brownstown Woods on the Nore; and at Cloghristic Wood, Drummond Wood and Borris Demesne on the Barrow, though other patches occur throughout the site. Abbeyleix Woods is a large tract of mixed deciduous woodland which is one of the only remaining true ancient woodlands in Ireland. Historical records show that Park Hill has been continuously wooded since the 16th century and has the most complete written record of any woodland in the country. It supports a variety of woodland habitats and an exceptional diversity of species including 22 native trees, 44 bryophytes and 92 lichens. It also contains eight indicator species of ancient woodlands. Park Hill is also the site of two rare plants, Nettle-leaved Bellflower and the moss *Leucodon sciuroides*. The rare Myxomycete fungus, *Licea minima* has been recorded from woodland at Abbeyleix.



Oak woodland covers parts of the valley side south of Woodstock and is well developed at Brownsford where the Nore takes several sharp bends. The steep valley side is covered by oak (*Quercus* spp.), Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*) and Downy Birch (*Betula pubescens*), with some Beech (*Fagus sylvatica*) and Ash (*Fraxinus excelsior*). All the trees are regenerating through a cover of Bramble (*Rubus fruticosus* agg.), Foxglove (*Digitalis purpurea*), Great Wood-rush (*Luzula sylvatica*) and Broad Buckler-fern (*Dryopteris dilatata*).

On the steeply sloping banks of the River Nore, about 5 km west of New Ross, in Co. Kilkenny, Kylecorragh Woods form a prominent feature in the landscape. This is an excellent example of relatively undisturbed, relict oak woodland with a very good tree canopy. The wood is quite damp and there is a rich and varied ground flora. At Brownstown, a small, mature oak dominated woodland occurs on a steep slope. There is younger woodland to the north and east of it. Regeneration throughout is evident. The understorey is similar to the woods at Brownsford. The ground flora of this woodland is developed on acidic, brown earth type soil and comprises a thick carpet of Bilberry (*Vaccinium myrtillus*), Heather (*Calluna vulgaris*), Hard Fern (*Blechnum spicant*), Common Cow-wheat (*Melampyrum pratense*) and Bracken (*Pteridium aquilinum*).

Borris Demesne contains a very good example of a semi-natural broadleaved woodland in very good condition. There is quite a high degree of natural regeneration of oak and Ash through the woodland. At the northern end of the estate oak species predominate. Drummond Wood, also on the Barrow, consists of three blocks of deciduous woods situated on steep slopes above the river. The deciduous trees are mostly oak species. The woods have a well-established understorey of Holly, and the herb layer is varied, with Bramble abundant. The whitebeam *Sorbus devoniensis* has also been recorded here.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. Characteristic species of the habitat include Meadowsweet, Purple Loosestrife (*Lythrum salicaria*), Marsh Ragwort (*Senecio aquaticus*), Ground Ivy (*Glechoma hederacea*) and Hedge Bindweed (*Calystegia sepium*). Indian Balsam (*Impatiens glandulifera*), an introduced and invasive species, is abundant in places.

Floating river vegetation is well represented in the Barrow and in the many tributaries of the site. In the Barrow the species found include water-starworts (*Callitriche* spp.), Canadian Pondweed (*Elodea canadensis*), Bulbous Rush (*Juncus bulbosus*), water-milfoils (*Myriophyllum* spp.), the pondweed *Potamogeton x nitens*, Broad-leaved Pondweed (*P. natans*), Fennel Pondweed (*P. pectinatus*), Perfoliated Pondweed (*P. perfoliatus*) and crowfoots (*Ranunculus* spp.). The water quality of the Barrow has improved since the vegetation survey was carried out (EPA, 1996).

Dry heath at the site occurs in pockets along the steep valley sides of the rivers especially in the Barrow Valley and along the Barrow tributaries where they occur in the foothills of the Blackstairs Mountains. The dry heath vegetation along the slopes of the river bank consists of Bracken and Gorse (*Ulex europaeus*) with patches of acidic grassland vegetation. Additional typical species include Heath Bedstraw (*Galium saxatile*), Foxglove, Common Sorrel (*Rumex acetosa*) and Creeping Bent (*Agrostis stolonifera*). On the steep slopes above New Ross the Red Data Book species Greater Broomrape (*Orobanche rapum-genistae*) has been recorded. Where rocky outcrops are shown on the maps Bilberry and Great Wood-rush are present. At Ballyhack a small area of dry heath is interspersed with patches of lowland dry grassland. These support a number of clover species, including the legally protected Clustered Clover (*Trifolium glomeratum*) - a species known from only one other site in Ireland. This grassland community is especially well developed on the west side of the mud-capped walls by the road. On the east of the cliffs a group of rock-dwelling species occur, i.e.



English Stonecrop (*Sedum anglicum*), Sheep's-bit (*Jasione montana*) and Wild Madder (*Rubia peregrina*). These rocks also support good lichen and moss assemblages with *Ramalina subfarinacea* and *Hedwigia ciliata*.

Dry heath at the site generally grades into wet woodland or wet swamp vegetation lower down the slopes on the river bank. Close to the Blackstairs Mountains, in the foothills associated with the Aughnabrisky, Aughavaud and Mountain Rivers there are small patches of wet heath dominated by Purple Moor-grass (*Molinia caerulea*) with Heather, Tormentil (*Potentilla erecta*), Carnation Sedge (*Carex panicea*) and Bell Heather (*Erica cinerea*).

Salt meadows occur at the southern section of the site in old meadows where the embankment has been breached, along the tidal stretches of in-flowing rivers below Stokestown House, in a narrow band on the channel side of Common Reed (*Phragmites australis*) beds and in narrow fragmented strips along the open shoreline. In the larger areas of salt meadow, notably at Carrickcloney, Ballinlaw Ferry and Rochestown on the west bank; Fisherstown, Alderton and Great Island to Dunbrody on the east bank, the Atlantic and Mediterranean sub types are generally intermixed. At the upper edge of the salt meadow in the narrow ecotonal areas bordering the grasslands where there is significant percolation of salt water, the legally protected species Borrer's Saltmarsh-grass (*Puccinellia fasciculata*) and Meadow Barley (*Hordeum secalinum*) are found. The very rare and also legally protected Divided Sedge (*Carex divisa*) is also found. Sea Rush (*Juncus maritimus*) is also present. Other plants recorded and associated with salt meadows include Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Sea Couch (*Elymus pycnanthus*), Spear-leaved Orache (*Atriplex prostrata*), Lesser Sea-spurrey (*Spergularia marina*), Sea Arrowgrass (*Triglochin maritima*) and Sea Plantain (*Plantago maritima*).

Glassworts (*Salicornia* spp.) and other annuals colonising mud and sand are found in the creeks of the saltmarshes and at the seaward edges of them. The habitat also occurs in small amounts on some stretches of the shore free of stones.

The estuary and the other E.U. Habitats Directive Annex I habitats within it form a large component of the site. Extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. Good quality intertidal sand and mudflats have developed on a linear shelf on the western side of Waterford Harbour, extending for over 6 km from north to south between Passage East and Creadaun Head, and in places are over 1 km wide. The sediments are mostly firm sands, though grade into muddy sands towards the upper shore. They have a typical macro-invertebrate fauna, characterised by polychaetes and bivalves. Common species include *Arenicola marina*, *Nephtys hombergii*, *Scoloplos armiger*, *Lanice conchilega* and *Cerastoderma edule*. An extensive area of honey-comb worm biogenic reef occurs adjacent to Duncannon, Co. Wexford on the eastern shore of the estuary. It is formed by the polychaete worm *Sabellaria alveolata*. This intertidal *Sabellaria alveolata* reef is formed as a sheet of interlocking tubes over a considerable area of exposed bedrock. This polychaete species constructs tubes, composed of aggregated sand grains, in tightly packed masses with a distinctive honeycomb-like appearance. These can be up to 25cm proud of the substrate and form hummocks, sheets or more massive formations. A range of species are reported from these reefs including: *Enteromorpha* sp.; *Ulva* sp.; *Fucus vesiculosus*; *Fucus serratus*; *Polysiphonia* sp.; *Chondrus crispus*; *Palmaria palmate*; *Coralinus officinalis*; *Nemertea* sp.; *Actinia equine*; *Patella vulgate*; *Littorina littorea*; *Littorina obtusata* and *Mytilus edulis*.

The western shore of the harbour is generally stony and backed by low cliffs of glacial drift. At Woodstown there is a sandy beach, now much influenced by recreation pressure and erosion. Behind



it a lagoonal marsh has been impounded which runs westwards from Gaultiere Lodge along the course of a slow stream. An extensive reedbed occurs here. At the edges is a tall fen dominated by sedges (*Carex* spp.), Meadowsweet, willowherbs (*Epilobium* spp.) and rushes (*Juncus* spp.). Wet woodland also occurs.

The dunes which fringe the strand at Duncannon are dominated by Marram (*Ammophila arenaria*) towards the sea. Other species present include Wild Clary/Sage (*Salvia verbenaca*), a rare Red Data Book species. The rocks around Duncannon ford have a rich flora of seaweeds typical of a moderately exposed shore and the cliffs themselves support a number of coastal species on ledges, including Thrift, Rock Samphire (*Crithmum maritimum*) and Buck's-horn Plantain (*Plantago coronopus*).

Other habitats which occur throughout the site include wet grassland, marsh, reedswamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds.

Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. These are Killarney Fern (*Trichomanes speciosum*), Divided Sedge, Clustered Clover, Basil Thyme (*Acinos arvensis*), Red Hemp-nettle (*Galeopsis angustifolia*), Borrer's Saltmarsh-grass, Meadow Barley, Opposite-leaved Pondweed (*Groenlandia densa*), Meadow Saffron/Autumn Crocus (*Colchicum autumnale*), Wild Clary/Sage, Nettle-leaved Bellflower, Saw-wort (*Serratula tinctoria*), Bird Cherry (*Prunus padus*), Blue Fleabane (*Erigeron acer*), Fly Orchid (*Ophrys insectifera*), Ivy Broomrape (*Orobanche hederarum*) and Greater Broomrape. Of these, the first nine are protected under the Flora (Protection) Order, 2015. Divided Sedge was thought to be extinct but has been found in a few locations in the site since 1990. In addition plants which do not have a very wide distribution in the country are found in the site including Thin-spiked Wood-sedge, Field Garlic (*Allium oleraceum*) and Summer Snowflake. Six rare lichens, indicators of ancient woodland, are found including *Lobaria laetevirens* and *L. pulmonaria*. The rare moss *Leucodon sciuroides* also occurs.

The site is very important for the presence of a number of E.U. Habitats Directive Annex II animal species including Freshwater Pearl Mussel (both *Margaritifera margaritifera* and *M. m. durrovensis*), White-clawed Crayfish, Salmon, Twaité Shad, three lamprey species – Sea Lamprey, Brook Lamprey and River Lamprey, the tiny whorl snail *Vertigo moulinsiana* and Otter. This is the only site in the world for the hard water form of the Freshwater Pearl Mussel, *M. m. durrovensis*, and one of only a handful of spawning grounds in the country for Twaité Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river. The Barrow/Nore is mainly a grilse fishery though spring salmon fishing is good in the vicinity of Thomastown and Inistioge on the Nore. The upper stretches of the Barrow and Nore, particularly the Owenass River, are very important for spawning

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Badger, Irish Hare and Common Frog. The rare Red Data Book fish species Smelt (*Osmerus eperlanus*) occurs in estuarine stretches of the site. In addition to the Freshwater Pearl Mussel, the site also supports two other freshwater mussel species, *Anodonta anatina* and *A. cygnea*.

Three rare invertebrates have been recorded in alluvial woodland at Murphy's of the River. These are: *Neoscia obliqua* (Order Diptera: Syrphidae), *Tetanocera freyi* (Order Diptera: Sciomyzidae) and *Dictya umbrarum* (Order Diptera: Sciomyzidae). The rare invertebrate, *Mitostoma chrysomelas* (Order Arachnida), occurs in the old oak woodland at Abbeyleix and only two other sites in the country. Two flies (Order Diptera) *Chrysogaster virescens* and *Hybomitra muhlfeldi* also occur at this woodland



The site is of ornithological importance for a number of E.U. Birds Directive Annex I species, including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bar-tailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois, and also along the Barrow Estuary in Waterford Harbour. There is also an extensive autumnal roosting site in the reedbeds of the Barrow Estuary used by Swallows before they leave the country. The old oak woodland at Abbeyleix has a typical bird fauna including Jay, Long-eared Owl and Raven. The reedbed at Woodstown supports populations of typical waterbirds including Mallard, Snipe, Sedge Warbler and Water Rail.

Land use at the site consists mainly of agricultural activities – mostly intensive in nature and principally grazing and silage production. Slurry is spread over much of the area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of the salmonid river and to the populations of E.U. Habitats Directive Annex II animal species within the site. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. There is net fishing in the estuary and a mussel bed also. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath, are also popular. There is a golf course on the banks of the Nore at Mount Juliet and GAA pitches on the banks at Inistioge and Thomastown. There are active and disused sand and gravel pits throughout the site. Several industrial developments, which discharge into the river, border the site. New Ross is an important shipping port. Shipping to and from Waterford and Belview ports also passes through the estuary.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, over-grazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel (*Prunus laurocerasus*) and Rhododendron (*Rhododendron ponticum*). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Good quality is dependent on controlling fertilisation of the grasslands, particularly along the Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as lamprey and shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein.

Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows and the population of the hard water form of the Freshwater Pearl Mussel, which is limited to a 10 km stretch of the Nore, add further interest to this site.

SITE NAME: River Nore SPA
SITE CODE: 004233

The River Nore SPA is a long, linear site that includes the following river sections: the River Nore from the bridge at Townparks, (north-west of Borris in Ossory) to Coolnamuck (approximately 3 km south



of Inistioge) in Co. Kilkenny; the Delour River from its junction with the River Nore to Derrynaseera bridge (west of Castletown) in Co. Laois; the Erkina River from its junction with the River Nore at Durrow Mills to Boston Bridge in Co. Laois; a 1.5 km stretch of the River Goul upstream of its junction with the Erkina River; the Kings River from its junction with the River Nore to a bridge at Mill Island, Co. Kilkenny. The site includes the river channel and marginal vegetation.

For a large part of its course the River Nore traverses Carboniferous limestone plains; it passes over a narrow band of Old Red Sandstone rocks below Thomastown.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive of special conservation interest for the following species: Kingfisher.

A survey in 2010 recorded 22 pairs of Kingfisher (based on 16 probable and 6 possible territories) within the SPA. Other species which occur within the site include Mute Swan (35), Mallard (267), Cormorant (14), Grey Heron (45), Moorhen (14), Snipe (17) and Sand Martin (1,029) – all figures are peak counts recorded during the 2010 survey.

The River Nore SPA is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.