

**Habitats Directive**  
**Screening for Appropriate Assessment Report**

**Ecological Assessment of**  
**Likely Significant Impacts of a Proposed Development at**  
**Dunleckny, Bagnelstown, Co. Carlow,**  
**on Conservation Objectives of**  
**Natura 2000 Sites**

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*Prepared by:*  
*Pascal Sweeney M.Sc. (Res.),*  
*Sweeney Consultancy,*  
*Rahan,*  
*Mallow*  
*Co. Cork.*  
*Tel. 022/26780*

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## **1.0 INTRODUCTION**

### **1.1 Legislative Background**

The primary purpose of this report is to provide relevant material to inform a decision by the public authority, as required under Article 6.3 of the EU Habitats Directive, as to whether the proposed works is likely to have any significant impacts of on the Conservation Objectives of a Natura 2000 site.

Section 42 (1) of S.I. No. 477 of 2011, the European Communities (Birds and Natural Habitats) Regulations 2011 states: *“A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.”*

Where the screening process cannot exclude the possibility that a plan or project, individually or in combination with other plans or projects, could have a significant effect on a European site, there is a requirement under Article 42 (9) of these Regulations for the preparation of a Natura Impact Statement to inform the Appropriate Assessment process.

### **1.2 Site Location**

The site of a proposed footpath is located in the townland of Dunleckny, to the north of the Bagnelstown, Co. Carlow, adjacent to a stretch of the R-705 Regional Road , as shown on Location Map, Appendix 2.

### **1.3 Potentially Affected Natura 2000 Sites**

Natura 2000 sites in the vicinity of the proposed development and with a direct physical connection to this development were checked for on the mapping system of the NPWS website <http://webgis.npws.ie/npwsviewer/>. The site of the proposed works is just within the eastern

boundary of Natura 2000 site Special Area of Conservation 002162 (River Barrow and River Nore SAC), which runs up to the public road, approximately 30m from the River Barrow at the nearest point (Map, Appendix 3).

## **1.4 Proposed Project**

The proposal is to construct a footpath, 1.5m -1.8m wide, and 465m in length, from ITM 670328 663117 to ITM 670543 662860, inside a low stone wall, where walkers currently use the public road.

## **1.5 Relevance of Proposed Project to Management of the SAC Site**

The proposed project is not relevant to the management of the Special Area of Conservation.

## **1.5 Ecological Consultancy Engaged**

Pascal Sweeney was engaged to carry out this report. Qualifications and past experience are presented in Appendix 4.

## **1.6 Report Structure**

In this report, the Department of the Environment, Heritage and Local Government guidance “*Appropriate Assessment of Plans and Projects in Ireland – guidance for Planning Authorities, 2009*” and the European Commission (2018) guidelines are followed.

The implications of all aspects of the proposed works are assessed, individually and in combination with any other relevant developments, plans or projects, in light of:

- the nature and quality of habitats within the site of the proposed works;
- information relating to the ecology of the Natura 2000 site;
- the status of Qualifying Interests of the Natura 2000 site and the relevant conservation status and objectives for these species and habitats;
- the key structural and functional relationships maintaining the integrity of the Natura 2000 site;

- the scale and nature of the aspects of the project in relation to the Natura 2000 site.

The aim of the report is to provide the public authorities with the relevant information necessary to inform the decision-making process, while ensuring that the requirements of the EU legislation quoted above are fully complied with.

## **2.0 PROPOSED WORKS**

Vegetation within 1.8m of the roadside wall will first be cleared with a mini-digger, operating from the road. The footpath is to be constructed by laying a heavy-duty geotextile strip that will give grip underfoot and allow natural drainage. There are no existing watercourses or drains to be crossed and no new drains conveying surface runoff directly or indirectly to the River Barrow will be created.

## **3.0 SITE ASSESSMENT (FLORA, FAUNA AND HABITATS PROTECTED UNDER THE EU HABITATS DIRECTIVE)**

### **3.1 Natura 2000 Site**

The Site Synopsis for SAC 002162 (Version 09.02.2016) and the Conservation Objectives (Version 19.07.2011) for the site are available on <http://www.npws.ie/protected-sites/sac/002162>.

The SAC designated area is very widespread, and includes the River Barrow and the River Nore, as well as many tributaries of both rivers and riparian lands. It extends from the Sieve Bloom Mountains in Co. Offaly to Creadun Head, Co. Waterford. Twelve habitats, listed in Annex I, and twelve species listed in Annex II of the EU Habitats Directive are Qualifying Interests, which must be maintained in favourable conservation status. The Qualifying Interests are listed in Appendix 5. Not all of these occur in the vicinity proposed development.

## **3.2 Development Site and Potentially Affected External Habitats/Species**

### **3.2.1 Development Site Habitat Assessment Methods**

A general assessment of the subject site was carried out in line with the Heritage Council draft Guidelines for Survey of Habitats (Draft 2, April 2005) and habitats were classified to level 3 of the Fossitt (2000) classification system on 18/01/2023. To illustrate the general habitat quality, photographs were taken using a digital camera. Grid references were recorded using a GPS handset. Site evaluation is based on the guidelines of the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).

### **3.2.2 Qualifying Interest Habitats Assessment Methods**

The floating river vegetation habitat was assessed, based on the criteria outlined by Hatton-Ellis and Grieve (2003).

Native woodland habitat was assessed, based on the criteria outlined by Cross *et al.* (2010).

Available literature and data were checked to establish the location and status of other listed Qualifying Interest habitats. Ordnance Survey maps and aerial photographs were also reviewed.

### **3.2.3 SAC Qualifying Interest Species Assessment Methods**

Available literature and data was first checked to establish the known distribution of species listed as Qualifying Interest of the Natura 2000 site.

The status of protected species possibly occurring in the watercourses adjacent to, or downstream of the site of the proposed development was assessed as follows:

Available records on the distribution of the freshwater pearl mussel (*Margaritifera margaritifera*) were checked.

- The habitat quality for salmon (*Salmo salar*) was assessed, based on the criteria outlined by Kennedy (1984) and by Bardonnnet and Baglinière (2000) for the physical instream requirements of this species for spawning, nursery and adult habitat.
- The habitat quality for the three species of lamprey, the brook lamprey (*Lampetra planeri*), river lamprey (*Lampetra fluviatilis*), sea lamprey (*Petromyzon marinus*) was assessed, based on the criteria outlined by Maitland (1980) and by Johns (2002) for the

physical instream requirements of these species for spawning, nursery and adult habitat. Available records on the distribution of these species were also checked.

- The presence of the otter (*Lutra lutra*) was checked for by examination of hard bankside surfaces for the presence of spraints and bankside mud/sand for imprints. The habitat quality for this species was assessed, based on the criteria outlined by Chanin (2003). Available records on the distribution of this species were also checked.
- The habitat quality for crayfish (*Austropotamobius pallipes*) was assessed, based on the criteria outlined by Holdich (2003). The known distribution of this species was checked in available literature.

### **3.3 Results**

#### **3.3.1 Development Site Habitats**

The site, adjacent to a public road (Habitat Code BL3), is at the edge of a strip of mixed broadleaves/conifer woodland (Habitat Code WD2). Tree and shrub species present within 10m of the site, in approximate order of occurrence are: Beech, Ash, Douglas Fir, Alder, Sycamore, Elder, Crab Apple, Hazel, Hawthorn, Elm, Yew. The dominant ground cover within the subject site is Ivy and Bramble, with some Stinging Nettle, Cow Parsley and Yorkshire Fog. (Appendix 6, Photos 1 & 2). No protected or non-native invasive species was observed. As there is a high proportion of non-native trees present, this woodland is of only moderate ecological value.

No Qualifying Interests habitats of SAC 002162 occur within the subject site, or between the subject site and the River Barrow. There are no watercourses or drains connecting the subject site to the River Barrow. The River Barrow adjacent to the subject site is deep and slow-flowing and is classified as Habitat Code FW2.

#### **3.3.2 SAC 002162 Qualifying Interest Habitats**

##### **Floating River Vegetation (Habitat Code 3260).**

The river contains some water crowfoot and starworts, which could be classified as the Annex I habitat type “*Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation*”.

**Petrifying Springs (Habitat Code 7220).**

This habitat is not present within or close to the area of the proposed development.

**Eutrophic Tall Herbs (Habitat Code 6430)**

Tall herb fringes occur along the banksides of the River Barrow, where it is deep and slow-flowing.

**Old Oak Woodlands (Habitat Code 91A0) and Dry Heath (Habitat Code 4030).**

Terrestrial habitats not present close to the area of the proposed development.

**Alluvial Wet Woodlands (Habitat Code 91E0).**

Alluvial wet woodland occurs along banks of the River Barrow, particularly in the lower reaches and the tidal section. This habitat is not present within or close to the area of the proposed development.

**Estuary (Habitat Code 1130), Tidal Mudflats & Sandflats (Habitat Code 1140), Salicornia Mudflats (Habitat Code 1310), Atlantic Salt Meadows (Habitat Code 1330), Mediterranean Salt Meadows (Habitat Code 1140) and Spartina swards (Habitat Code 1320)**

These habitats are found in saline conditions, over 35km downstream of the Bagnelstown.

**3.3.4 SAC 002162 Qualifying Interest Species****Desmoulins' Whorl Snail (*Vertigo moulinsiana*) (Species Code 1060).**

*Vertigo moulinsiana* is found in calcareous wetlands, usually adjacent to lowland rivers and lakes (Kerney, 1999). It is known to occur downstream of Borris, and there is an old record of it having been found on floating debris at Graiguenamanagh (E. Moorkens, *pers. comm.*).

**Freshwater Pearl Mussel (*Margaritifera margaritifera*) (Species Code 1029).**

The freshwater pearl mussel is apparently now extinct in the main channel of the River Barrow (Lucey, 1998). A live specimen of freshwater pearl mussel was last found in the River Barrow in 1991, c. 5km upstream of Graiguenamanagh (Grid Ref. S734 477). As this location is



downstream of the confluence of the Mountain River, which supports a freshwater pearl mussel population, this specimen was probably washed into the River Barrow (E. Moorkens, *pers. comm.*).

**Nore Freshwater Pearl Mussel** (*Margaritifera m. durrovensis*) (**Species Code 1990**).

Within SAC 002162, the Nore freshwater pearl mussel is a sub-species which occurs only in a 10km stretch of the main channel of the River Nore and is not in any part of the River Barrow.

**Twaite Shad** (*Alosa fallax*) (**Species Code 1103**) and **Allis Shad** (*Alosa fallax*) (**Species Code 1102**).

Allis and Twaite shad are anadromous fish which enter large estuaries in early summer to spawn in gravels near the end of the freshwater reaches. Rooney *et al.* (2014) recorded juvenile shad in the River Barrow downstream of St. Mullin's in summer 2013.

**Sea Lamprey** (*Petromyzon marinus*) (**Species Code 1095**), **Brook Lamprey** (*Lamprera planeri*) (**Species Code 1096**) and **River Lamprey** (*Lamprera fluviatilis*) (**Species Code 1099**).

King (2006) recorded juvenile sea and brook/river lampreys in tributaries of this part the River Barrow.

**Atlantic Salmon** (*Salmo salar*) (**Species Code 1106**).

O'Reilly (2002) states that the River Barrow is a fair to good salmon river.

**White-Clawed Crayfish** (*Austropotamobius pallipes*) (**Species Code 1092**).

Demers *et al.*, (2005) reported crayfish to be fairly well distributed in the River Barrow catchment. Crayfish plague was first recorded the lower part of the river in 2017 and has since been progressing upstream. It appears likely that the crayfish population downstream of Bagnelstown has been wiped out by plague.

**Otter (*Lutra lutra*) (Species Code 1355).**

Within the South Eastern River Basin District, which includes the River Barrow, Baily and Rochford (2006) recorded positive results at nearly 73% of sites surveyed, indicating a widespread distribution of the species.

**Killarney Fern (*Trichomanes speciosum*) (Species Code 1421).**

Killarney fern is a terrestrial species, found on very sheltered, damp rock faces (Stace, 1991). It does not occur within the site of the proposed development.

## **4.0 SCREENING FOR APPROPRIATE ASSESSMENT**

### **4.1 Screening of Potential Impacts: Construction Phase**

The vegetation to be removed will consist mainly of ivy and bramble. In addition, the following will also need to be removed: one small sycamore, two small ash, two small crab apples, two small elder and one small hawthorn. A large beech tree (girth 1.9m) immediately beside the road at the northern end of the subject site will not be impacted by the works. The removal of the small amount of vegetation at the woodland edge will not significantly impact on the integrity of the woodland.

Due to the location and nature of the proposed works and the nature of the site, with the implementation of the construction methodologies to be implemented by Carlow Co. Co. (Report Section 2), negative impacts on all Qualifying Interests of SAC 002162 will be avoided and can be screened out.

### **4.2 Screening of Potential Impacts: Operational Phase**

Due to the location and nature of the proposed development, the operational phase of the proposed project will not result in contaminants entering the river. Impacts on all Qualifying Interests of SAC 002162 at operational phase can therefore be screened out.

### **4.3 Assessment of Significance**

The proposed development will not result in any loss or fragmentation of habitats for which the SAC is designated.

The proposed development will not have any significant impact on the water quality of the River Barrow.

The proposed development will not have any significant negative impacts on the Qualifying Interests for which SAC 002162 is designated.

The proposed development will not have any significant negative impacts on the Conservation Objectives or integrity of any Natura 2000 site.

#### **4.4 Cumulative Impacts**

The proposed development will not, on its own, negatively impact on the biological water quality of the River Barrow, nor on the Qualifying Interests of the Natura 2000 site. Neither will it add to the other cumulative impacts on any Natura 2000 site from other sources.

#### **4.5 Conclusions of Screening Report**

The proposed development will have neither positive nor negative effects on the targets set in the Conservation Objectives for the various Qualifying Interests of SAC 002162.

Having assessed all relevant potential effects of the proposed development, it is considered that all potential impacts on the Conservation Objectives of Natura 2000 sites can be screened out.

## APPENDIX 1

### REFERENCES

Bailey, M. and Rochford J. (2006) Otter Survey of Ireland 2004/2005. Irish Wildlife Manuals, No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Bardonnet, A. and Baglinière, J. (2000). Freshwater habitat of Atlantic salmon. *Can. J. Fish. Aquat. Sci.* 57: 497 – 506

Chanin P (2003). Ecology of the European Otter. Conserving Natura 2000. Rivers Ecology Series No. 10. English Nature, Peterborough.

CIEEM (2018). The Guidelines for Ecological Impact Assessment in the UK and Ireland.

Crisp, D.T. (1996). Environmental requirements of common riverine European salmonid fish species in fresh water with particular reference to physical and chemical aspects. *Hydrobiologia* 323: 201 – 221

Cross, J., Perrin, P. and Little, D. (2010). The classification of native woodlands and its application to native woodland management. Native Woodland Information Note 6. *Woodlands of Ireland*.

Demers, A., Lucey, J., McGarrigle, M. and Reynolds, J. (2005) the distribution of the white-clawed crayfish (*Austropotamobius pallipes*) in Ireland. *Biology and Environment: proceeding of the Royal Irish Academy*: 105B: 65-69.

Doherty, D., O'Maoiléidigh, N., and McCarthy, T.K. (2004). The biology, ecology and future conservation of the Twaite shad (*Alosa fallax* Lace 'PE' DE), Allis shad (*Alosa alosa* L.) and Killarney shad (*Alosa fallax killarniensis* Tate Regan) in Ireland. *Biology and Environment: proceeding of the Royal Irish Academy*: 104B: 93-102.

EC (2018). Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC

EPA (2002). Guidelines on the Information to be Contained in Environmental Impact Statements.

Fossitt, J.A. (2000). A Guide to Habitats in Ireland. *The Heritage Council*.

Hatton-Ellis TW & Grieve N. (2003). Monitoring Watercourses Characterised by *Ranunculion fluitantis* and *Callitriche-Batrachion* Vegetation Communities. *Conserving Natura 2000 Rivers Monitoring Series No. 11*, English Nature, Peterborough.

Hendry, D. and Cragg-Hine, K. (2003) Ecology of the Atlantic Salmon. *Conserving Natura 2000 Rivers Monitoring Series No. 7*, English Nature, Peterborough.

Heritage Council (2005). Draft Guidelines for Survey of Habitats.

Holdich, D. (2003) Ecology of the white-clawed crayfish. *Conserving Natura 2000 Rivers Monitoring Series No.1*, English Nature, Peterborough. (available on [www.riverlife.org.uk](http://www.riverlife.org.uk))

Johns, M. (2002). Lampreys: relicts from the past. *British Wildlife*. 13: 381 - 388.

Kennedy, G.J.A. (1984). Evaluation of techniques for classifying habitats for juvenile Atlantic Salmon (*Salmo salar* L.). *Atlantic Salmon Trust Workshop on Stock Enhancement*.

Kerney, M. (1999). Atlas of the land and freshwater molluscs of Britain and Ireland. *Harley Books*.

King, J. (2006) The status and distribution of lamprey in the River Barrow SAC. Irish Wildlife Manuals No. 21. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Lucey, J. (1998). The Barrow, the Nore and the Suir. In: C. Moriarty (ed.) *Studies of Irish rivers and lakes. Essays on the occasion of the XXVII Congress of Societas Internationalis Limnologiae (SIL)*, 99-118 Marine Institute, Dublin

Maitland. P.S. (2003) Ecology of the River, Brook and Sea Lamprey. Conserving Natura

O'Reilly, P. (2002). Rivers of Ireland: A flyfisher's guide. Merlin Unwin Books. Fifth edition.

Skinner, A, Young M. & Hastie L. (2003). Ecology of the Freshwater Pearl Mussel. *Conserving Natura 2000 Rivers Ecology Series No. 2 English Nature, Peterborough.*

Smith, G.F., O'Donoghue, P., O'Hora, K and Delaney, E. (2011) Best Practice Guidance for Habitat Survey and Mapping. Heritage Council.

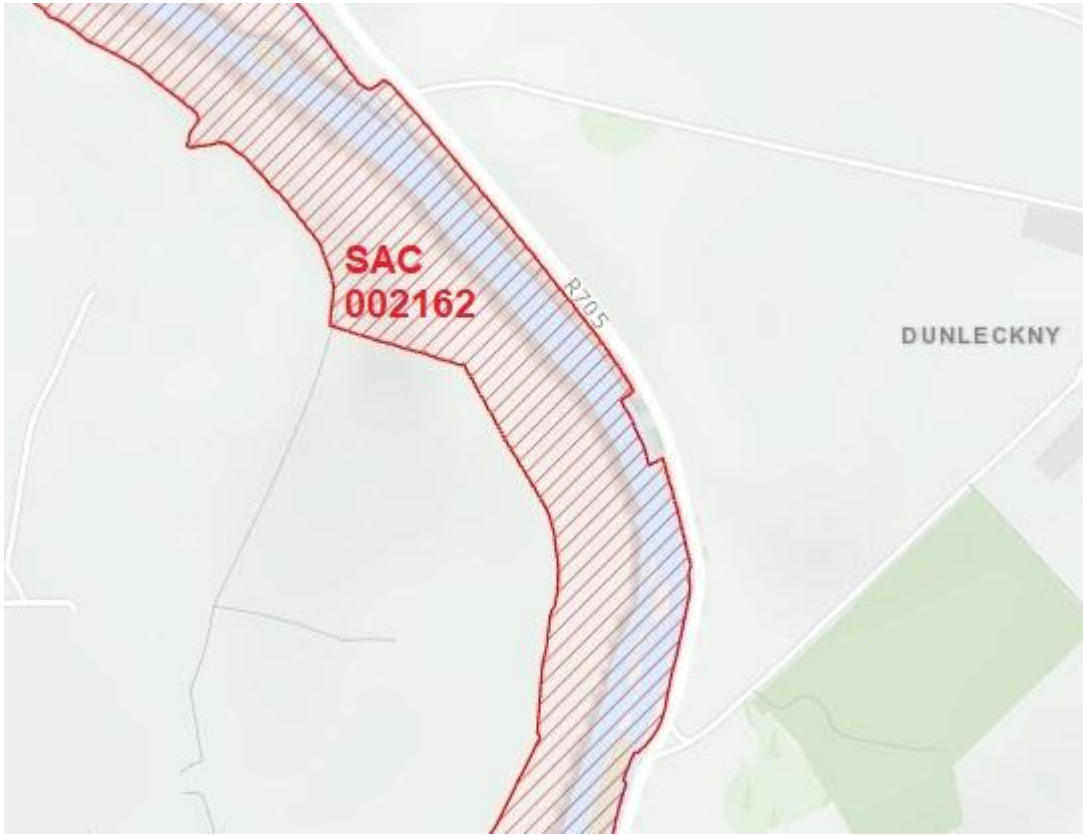
Stace, C. (1991). New flora of the British Isles. *Cambridge University Press.*

## APPENDIX 2 LOCATION MAP





**APPENDIX 3**  
**SAC 002162 MAP**



## APPENDIX 4

### PASCAL SWEENEY: QUALIFICATIONS & EXPERIENCE

#### **QUALIFICATIONS:** B.Sc., M.Sc.(Res).

M.Sc. thesis by research on aquatic insect populations and eutrophication in the Killarney Lakes. Committee member of the Irish Freshwater Sciences Association, Member of the Freshwater Biological Association (UK) and the Botanical Society of the Britain and Ireland.

#### **MAIN RELEVANT EXPERIENCE:**

##### **Habitats Directive Appropriate Assessment:**

Over 250 reports for Appropriate Assessment (Screening Reports and Natura Impact Statements) for a wide variety of proposed developments, including local authority waste water treatment plants, flood defence schemes, fish passes, bridge improvements, landfills, large industrial developments and private housing.

##### **Freshwater Biological Water Quality Monitoring:**

Yearly monitoring of biological water quality of rivers for the EPA Q-scheme monitoring programme from 2012 to 2022. Water quality surveys for local authorities (Carlow, Dunlaoghaire-Rathdown, Kildare, Kilkenny, Tipperary, Waterford, Wexford Co. Cos.), semi-state bodies (Coillte, Inland Fisheries Ireland, Irish Water) and industries (e.g. Glanbia, Dairygold, Irish Sugar, Irish Distillers, Lisheen Mine, Carbury Mushrooms). Profundal species analysis of over 600 lake samples for EPA and 250 lake samples for NIEA.

##### **Impact Assessment:**

Impact assessment of proposed developments on freshwater habitats and recommendation of mitigation measures. These developments include roads, gas pipelines, landfills, quarries, hydropower stations, intensive agriculture and industries.

##### **Agri-Environmental Schemes (REPS) and (AEOS):**

Preparation of Environmental Reports, with management recommendations for REPS/AEOS and hen harrier scheme applications throughout Munster (over 680 reports).

**Commonage Framework Planning:**

Surveyed habitats, assessed vegetation condition and recommended management requirements on mountain and coastal commonages in Cork Tipperary, Limerick, Clare, Carlow and Wexford.

**Habitat Surveys and Management Planning of Coillte Property:**

Habitat and botanical surveys of potential Biodiversity Areas in Cork and Waterford.

**Native Woodland Scheme:**

Approved by the Forest Service as a Participating Ecologist. Preparation of the ecological aspects of the Ecological Survey/Management Plans. (49 plans).

**Bat Surveys:**

Bat surveys at proposed development sites, including buildings, road bridges and tree lines. Participant in the annual All Ireland Daubenton's Bat Waterways Monitoring Survey.

**Freshwater Pearl Mussel Surveys:**

Licensed surveys for *Margaritifera margaritifera* in the following river catchments: Munster Blackwater, Lee, Bandon, Slaney, Barrow, Nore, Suir, Owenriff, Kerry Blackwater, Mahon, Tay, Colligan and Moy.

**White-Clawed Crayfish Surveys:**

Licensed surveys for *Austropotamobius pallipes* in the following river catchments: Munster Blackwater, Bandon, Shannon, Liffey, Barrow, Nore and Suir.

**Invasive Alien Plant Species Surveys and Management Plans:**

Surveys of plants included in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 at 33 sites in north Co. Cork for Cork CC in 2017. Surveys and Management Plans for knotweed species affected by the Bandon Flood Relief Scheme.

## APPENDIX 5

### River Barrow and River Nore SAC Qualifying Interests

(from www.npws.ie)

#### Annex I Habitats

EU Habitat Code	Habitat Name
91A0	Old sessile oak woods with Ilex and Blechnum in British Isles
91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)
3260	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation
1310	Salicornia and other annuals colonizing mud and sand
1330	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> )
1410	Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )
4030	European dry heaths
7220	Petrifying springs with tufa formation ( <i>Cratoneurion</i> )
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
1320	<i>Spartina</i> swards ( <i>Spartinion maritimae</i> )
1140	Mudflats and sandflats not covered by seawater at low tide
1130	Estuaries

#### Annex II Species

EU Species Code	Species Taxonomic Name	Species Common Name
1029	<i>Margaritifera margaritifera</i>	Freshwater Pearl Mussel
1990	<i>Margaritifera durrovensis</i>	Nore Pearl Mussel
1016	<i>Vertigo moulinsiana</i>	Desmoulins' whorl snail
1095	<i>Petromyzon marinus</i>	Sea Lamprey
1096	<i>Lampetra planeri</i>	Brook Lamprey
1099	<i>Lampetra fluviatilis</i>	River Lamprey
1102	<i>Alosa alosa</i>	Allis Shad
1103	<i>Alosa fallax</i>	Twaite Shad
1106	<i>Salmo salar</i>	Atlantic Salmon
1355	<i>Lutra lutra</i>	European Otter
1092	<i>Austropotamobius pallipes</i>	White Clawed Crayfish
1421	<i>Trichomanes speciosum</i>	Killarney Fern

## APPENDIX 6 PHOTOGRAPHS

**Photo 1: Subject Site, northern end**



**Photo 2: Subject Site southern end**

