## DixonBrosnan environmental consultants

## Ecological Impact Assessment (EcIA)

Completion of Road Realignment and Improvement Works, At R585 Dromdeegy and Cooranig, Dunmanway, Co. Cork

On Behalf of Cork County Council

December 2022

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environmental consultants

| Project   | Ecological Impact Asses<br>Improvement Works, At<br>Cork   | Ecological Impact Assessment for Completion of Road Realignment and<br>Improvement Works, At R585 Dromdeegy and Cooranig, Dunmanway, Co.<br>Cork |  |  |  |
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## 1. Introduction

DixonBrosnan Environmental Consultants were commissioned to assess the potential impacts of the proposed completion of road realignment and improvement works, at the R585 Dromdeegy and Cooranig, Dunmanway, Co. Cork and all associated site works, on terrestrial and aquatic flora and fauna. This report describes and evaluates the habitats with their representative flora and fauna and addresses the potential impacts of the development on the ecology of the site and the surrounding area.

## 2. Methodology

#### 2.1 Introduction

This appraisal is based on surveys of the proposed development site and a review of desktop data. Although not part of an environmental impact assessment report (EIAR) this report follows the structure and protocols detailed in *Advice notes for preparing Environmental Impact Statements* (EPA 2003) and *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*' (EPA 2022).

#### 2.2 Desktop Review

A desktop review facilitates the identification of the baseline ecological conditions and key ecological issues relating to European sites and facilitates an evaluation assessment of potential in-combination impacts. Sources of information used for this report include reports prepared for the Dromdeegy/Dunmanway area and information from statutory and non-statutory bodies. The following sources of information and relevant documentation were utilised:

- National Parks & Wildlife Service (NPWS) www.npws.ie
- Environmental Protection Agency (EPA) www.epa.ie
- National Biodiversity Data Centre (NBDC)- www.biodiversityireland.ie
- Cork County Biodiversity Action Plan 2009-2014;
- Cork County Development Plan 2022;
- Bat Conservation Ireland http://www.batconservationireland.org
- Birdwatch Ireland http://www.birdwatchireland.ie/ and
- Invasive Species Ireland http://www.invasivespeciesireland.com/

This report follows the Environmental Protection Agency's *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA 2022). It also takes account of the *Draft Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (Department of Environment, Community and Local Government, August 2018), *Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority, 2009) Chartered Institute of Ecology and Environmental Management *Guidelines on Ecological Impact Assessment in the UK and Ireland, 2nd edition* 

(CIEEM 2016) and Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Version 1.1 (CIEEM, 2019).

Reference was also made to the following key documents where relevant:

- Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011)
- A Guide to Habitats in Ireland (Fossitt, 2000)
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (National Roads Authority (NRA) 2005b)
- Guidelines for the treatment of bats during the construction of national road schemes (National Roads Authority (NRA) 2005c)
- Guidelines for the protection and preservation of trees, hedgerows and scrub prior to, during and post construction of national road schemes. (National Roads Authority (NRA) 2006)
- Guidelines for the treatment of Otters prior to the construction of National Road Schemes (National Roads Authority (NRA) 2008)
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)' (Collins, J. (ed.), 2016)
- *Bird Census Techniques* Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. (2000) and
- Bird Monitoring Methods a Manual of Techniques for Key UK Species. Gilbert, G., Gibbons, D.W. & Evans, J. (1998).

#### 2.2.1 Relevant Legislation

Flora and fauna in Ireland are protected at a national level by the Wildlife Acts, 1976 as amended and the European Communities (Birds and Natural Habitats) Regulations 2011. They are also protected at a European level by the EU Habitats Directive (92/43/EEC) and the EU Birds Directive (79/409/EEC) amended in 2009 as the Directive 2009/147/EC.

Under this legislation, sites of nature conservation importance are then designated in order to legally protect faunal and floral species and important/vulnerable habitats.

The categories of designation are as follows:

- Special Areas of Conservation (SAC) are designated under the European Communities (Birds and Natural Habitats) Regulations 2011 to comply with the EU Habitats Directive (92/43/EEC);
- Special Protection Areas (SPAs) and designated under the EU Birds Directive (79/409/EEC) amended in 2009 as the Directive 2009/147/EC; and
- Proposed Natural Heritage Areas (pNHA) are listed under the Wildlife (Amendment) Act, 2000. They have limited legal protection under Local Authority Development Plans.

#### 2.3 Survey Overview

Site visits were carried out on the 29<sup>th</sup> of March 2022, 21<sup>st</sup> July, 2022 and 26<sup>th</sup> November 2022. The following surveys were carried out at the site:

- Habitats were mapped according to the classification scheme outlined in Fossitt, (2000) and Heritage Council (2011);
- The proposed development area was surveyed for invasive species;
- General bird surveys were carried out in conjunction with habitat surveys. There are no specialised habitats for birds within the site boundary and
- A general mammal survey was carried out in conjunction with the habitat survey following NRA guidelines (NRA 2005b, NRA 2005c, NRA 2008).

This report was prepared by Carl Dixon MSc (Ecological Monitoring) and Sorcha Sheehy PhD (Ecology/Ornithology).

Carl Dixon MSc (Ecology) is a senior ecologist who has over 25 years' experience in ecological and water quality assessments. Carl Dixon holds an Honours Degree (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC. He is a senior ecologist who has over 25 years' experience in ecological assessment. Prior to setting up DixonBrosnan Environmental Consultants in 2000, Carl set up and ran Core Environmental Services which included Rural Environmental Protection Scheme (REPS) planning for landowners and ecological assessments. Carl has particular experience in freshwater ecology including electrofishing fish stock assessments and water quality assessments. He also has considerable experience in habitat mapping and mammal ecology including survey work and reporting in relation to badgers and bats. Other competencies include surveys for invasive species and bird surveys. Carl has extensive experience with regards to EIAR and NIS mitigation and impact assessment. He has particular experience in large-scale industrial developments with extensive experience in complex assessments as part of multi-disciplinary teams. Such projects include gas pipelines, incinerators, electrical cable routes, oil refineries and quarries.

Dr. Sorcha Sheehy PhD (ecology/ornithology) is an experienced ecological consultant specialising in bird behaviour. Sorcha received a BSc in Applied Ecology from UCC and subsequently went on to receive a PhD in behavioural ornithology at UCC. During her PhD research, Sorcha studied bird-aircraft collision with a particular focus on bird behaviour, included field-based behavioural observations at airports, bird cadaver examination and collision classification and the use of radar tracking to model collision risk. Sorcha has worked for over 15 years in a professional ecology role and specialises in the coordination of ecology projects and assessments. She has coordinated and contributed to Habitats Directive Assessments (AA screenings and NIS) and Environmental Impact Assessment Reports (EIAR) for a range of small and large-scale projects with particular expertise in assessing impacts on birds. Notable projects include Arklow Bank Wind Park, Shannon Technology and Energy Park and Waste to Energy Facility Ringaskiddy.

## 3. Proposed Development

#### 3.1 Existing Site

Cork County Council has identified the need to carry out road safety and realignment improvement works to the R585 regional road at Dromdeegy and Cooranig, Dunmanway, Co. Cork. The existing road is substandard because of its inadequate width and poor horizontal and vertical alignment geometry. The realignment works will run over a length of approximately 410m with tie-in to the existing road at both ends.

The proposed development site is located circa 6.5km north of Dunmanway Town Centre in the townlands of Dromdeegy and Cooranig. The R585 is a Regional road which runs from Kealkill Village to its Junction with the N22, National Primary Road, east of Crookstown in the Municipal District (MD) area of Dunmanway. The road is a busy rural regional road which is used as one of the main routes for motorists travelling from West Cork especially from the Beara Peninsula. There are high volumes of Heavy Goods Vehicles (HGV's) using this route.

The proposed development site is located on the Regional Route R585 from Copeen to Kealkill (**Figure 1**). The site is located in a rural setting. In the wider landscape habitats include a mixture of immature and semi-mature conifer plantations, areas of wet heath with exposed bedrock and semi-intensive grassland. The Caha River is located to the northeast of the site and the R585 crosses this river at the Poulnaberry Bridge approximately 200m east of the proposed development site.

#### **3.2 Proposed Development**

The proposed overall road improvement works will consist of the following:

Alteration to existing road alignment to improve road safety;

- Site Clearance;
- Relocation of overhead line;
- Constructing earth berms and fencing;
- Signage, road lining & roads studs;
- All ancillary works required to deliver the proposed scheme.

Part of the works have already been completed i.e. site clearance and laying of hardcore in new road footprint. This report deals with the completion of the works i.e. construction of earth berms and fencing, signage, road lining, road studs and all ancillary work. The existing road which will no longer be in active usage will not be excavated. It is expected that this will be colonised by a mixture of early successional species and scrub over time.

An overview of the proposed development site is shown in Figure 2.



Figure 1. Site location | Source Cork County Council



Figure 2. Site location and local enviros | Source: Cork County Council

## 4. Designated Conservation Areas

#### 4.1 European (Natura 2000) Sites

Special Areas of Conservation (SACs) and candidate SACs are protected under the Habitats Directive 92/43/EEC and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Special Protection Areas (SPAs) are protected under the Birds Directive 2009/147/EC and European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Collectively, these sites are referred to as Natura 2000 or European sites.

The proposed development site is located within the likely zone of impact of a number of Natura 2000 sites listed in **Table 1** and shown in **Figure 3**. The closest Natura 2000 site is the Bandon River SAC (Site code 002171), located 2.1km southeast of the site. The Caha River is located approximately 200m northeast of the works area. The Caha River is a tributary of the Bandon River, with the confluence located approximately 2.8km downstream of the works area. During construction and operation, surface water runoff could potentially impact on water quality within the Caha River and the Bandon River SAC. The improvement works could also potentially increase the hard surfaces at the site, increasing the rate of run-off from the site and potentially impact the hydrology of the Caha River.

The Bandon River SAC consists of relatively short adjoining stretches of the Bandon and Caha Rivers. These rivers flow in a southerly direction to the east of Dunmanway, Co. Cork. Towards the southern end of the site the Bandon River takes an easterly course. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (\* = priority; numbers in brackets are Natura 2000 codes): [3260] Floating River Vegetation, [91E0] Alluvial Forests\*, [1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*) and [1096] Brook Lamprey (*Lampetra planeri*). The site also supports many of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Badger, Irish Hare, Daubenton's Bat and Pipistrelle bat. The two bat species can be seen feeding along the river and roosting under the old bridges. Otter, another species listed on Annex II of the EU Habitats Directive, is also found within the site.

| Natura 2000 Sites   | Site Code    | Distance at closest point and potential source-pathway-receptor link |  |  |
|---|--------------|--|--|--|
| Special Area of Conserv   | vation (SAC) |  |  |  |
| Bandon River SAC  | 002171       | 2.1km southeast.   |  |  |
| The Gearagh SAC   | 000108       | 11.km north.   |  |  |
| Special Protection Area   | (SPA)        |  |  |  |
| The Gearagh SPA   | 004109       | 13.1km north.  |  |  |
| Natural Heritage Area (NHA)/proposed Natural Heritage Area (pNHA) |              |  |  |  |
| Lough Allua pNHA  | 001065       | 6.6km north  |  |  |

#### Table 1. Designated sites and their location relative to the proposed development site

| Natura 2000 Sites                        | Site Code | Distance at closest point and potential source-pathway-receptor link |
|--|-----------|--|
| Bandon Valley South of<br>Dunmanway pNHA | 001035    | 6.5km southeast  |



# Figure 3. Location of the proposed development boundary and Natura 2000 sites located within zone of influence of the site | Source: EPA Envision mapping <u>https://gis.epa.ie/EPAMaps/</u>) | Not to scale

An Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS) was carried out for the proposed development and submitted with this application: *Report in Support of Appropriate Assessment (AA) Screening & Natura Impact Statement (NIS) for Completion of Road Realignment and Improvement Works, At R585 Dromdeegy and Cooranig, Dunmanway, Co. Cork* (DixonBrosnan 2022).

The conclusions of the report were as follows:

It has been objectively concluded following an examination, analysis and evaluation of the relevant information, including in particular the nature of the predicted effects from the proposed development and with the implementation of the mitigation measures proposed, that the construction, operation and decommissioning of the proposed development will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects. There is no reasonable scientific doubt in relation to this conclusion. The competent authority will make the final determination in this regard.

#### 4.2 Nationally Protected Sites

Natural Heritage Areas (NHAs/pNHAs) are national designations under the Wildlife Act 1976, as amended. A Natural Heritage Area (NHA) is designated for its wildlife value and receives statutory protection. A list of proposed NHAs (pNHAs) was published on a non-statutory basis in 1995, but these have not since been statutorily proposed or designated. NHAs and pNHAs in the vicinity of the proposed development site are listed in **Table 1**.

There are no NHAs/pNHAs in proximity to the proposed development site. There are two sites within 10km of proposed development site i.e. Lough Allua pNHA and Bandon Valley South of Dunmanway pNHA via the Caha River. There is no hydrological connection between the proposed development site and Lough Allua pNHA.



Figure 4. NHAs and pNHAs in the vicinity of the proposed development site | Source: EPA Envision mapping https://gis.epa.ie/EPAMaps/) | Not to scale

## 5. Habitats

Habitat surveys and mapping were carried out on the on the 29<sup>th</sup> of March 2022, 21<sup>st</sup> July, 2022 and 26<sup>th</sup> November 2022. Habitat mapping was carried out in line with the methodology outlined in the Heritage Council Publication, *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011). The terrestrial and aquatic habitats within or adjacent to the proposed development site was classified using the classification scheme outlined in the Heritage council publication *A Guide to Habitats in Ireland* (Fossitt, 2000) and cross referenced with Annex I Habitats where required.

A current overview of habitats recorded within the site is described in **Table 2**. Site photographs are also included below. The ecological value of habitats has been defined using the classification scheme outlined in the *Guidelines for Assessment of Ecological Impacts of* 

National Road Schemes (National Roads Authority, 2009) which is included in **Appendix 1**. It should be noted that the value of a habitat is site specific and will be partially related to the amount of that habitat in the surrounding landscape. Habitats that are considered to be good examples of Annex I and Priority habitats are classed as being of International or National Importance. Semi-natural habitats with high biodiversity in a county context and that are vulnerable, are considered to be of County Importance. Habitats that are semi-natural, or locally important for wildlife, are considered to be of Local Importance (higher value) and sites containing small areas of semi-natural habitat or maintain connectivity between habitats are considered to be of Local Importance (lower value).

The proposed development area consists of an existing road and adjoining area of hardcore. In the wider landscape habitats include a mixture of immature and semi-mature conifer plantations, areas of wet heath with exposed bedrock and semi-intensive grassland. The Caha River is the most prominent potential ecological receptor in the wider landscape and potential hydrological connections to this watercourse are shown in **Figure 4**.

A site survey was specifically carried out during a period of heavy rainfall in November 2022 when water had ponded on local roads and some flooding was evident of low lying fields. The purpose of this site visit was to assess flow patterns during periods of high rainfall. The Caha River was in spate during the site visit.

There was extensive flooding of the low-lying Wet willow-alder-ash woodland WN6 which adjoins the Caha River downstream (north) of the site, with water levels over large areas averaging 0.5m. Although the channels which flow through the woodland convey water directly to the Caha River, these channels are relatively narrow and a therefore only a small proportion of the surface water run-off was conveyed directly to the river.

It was also noted that the coniferous woodland WD4 (to the south of proposed development site) which adjoins a drain discharging to the Caha River downstream of the proposed development, had been felled prior to the November 2022 site visit. There was no buffer in place between the felled woodland and the drain and as conveyance of surface water run-off is restricted by the limited size of the drainage channel, water was back flooding into the felled woodland area. Within the felled woodland, some siltation was evident where the backfilled water came into contact with the bare soil. In general the Wet willow-alder-ash woodland WN6 will flood during spate conditions, which would allow a high proportion of the silt in surface run-off during spate events to settle on the woodland floor rather than discharging directly to the Caha River. High levels of soft mud were recorded in this woodland area during site surveys. During drier conditions, most of the flow will be confined to the drainage channels and in such circumstances this will discharge directly to the river via the existing network of drainage channels. It is noted that silt fences which have been located on drainage channels within the coniferous woodland adjoining the works area, were in place during the November site visit however and were generally functional.

### Table 2. Habitat recorded with proposed development site

| Habitat   | Comments   | Ecological value<br>(NRA)         |
|---|--|-----------------------------------|
| Buildings and<br>artificial surfaces<br>BL3 /Spoil and<br>bare ground ED2/<br>Dry meadow and<br>grassy verge GS2<br>Within works area | The proposed development area consists of the existing tarmac<br>road (R585) and a narrow strip of adjoining land to the south. This<br>narrow strip of land has been highly modified and consists of<br>hardcore which it is now proposed to tarmac as part of the road<br>improvement works. The hardcore area is relatively flat and some<br>early successional species have become established including<br>Willowherb and Ragwort. This habitat is of negligible ecological<br>value. The existing road is in active usage and is also of negligible<br>ecological value. | Local importance<br>(lower value) |
|   | Topsoil from the hardcore area has been stockpiled and is now<br>becoming vegetated. The topsoil is peaty in nature and species<br>noted include Cocksfoot, Yorkshire Fog, Rush, Foxglove, Sow<br>Thistle, Ragwort, Spear Thistle and Creeping Buttercup. This<br>habitat is of low ecological value.  |                                   |
|   | This is not an Annex I habitat or a qualifying habitat for the Bandon River SAC.   |                                   |
| Drainage ditches<br>FW4<br>Outside works  | There are a number of small drainage ditches in proximity to the development which all ultimately drain into the Caha River, to the northeast of the site. These are small localised drains which are likely to have minimal flows during any prolonged period of dry weather but have substantial, temporary flows during periods of high rainfall.   | Local importance<br>(lower value) |
|   | In the southwestern section of the proposed development site, a<br>small open drain with existing silt fences runs along part of the<br>southern boundary of the site and is then piped under the hardcore<br>area and existing road. It subsequently runs in an easterly direction<br>towards the Caha River. Flows are sluggish as it moves through<br>wet grassland and a wet wooded area close to the Caha River<br>Ultimately this drain discharges to the Caha River.  |                                   |
|   | In the north-eastern section of the proposed development site, a second more distinct drainage ditch arises to the south and runs along the boundary of a section of conifer woodland WD4 (recently felled), is piped under the road and then flows northeast for approximately 92m before joining the Caha River. This stream is not directly affected by the site works and also passes through the native woodland noted above before reaching the Caha River.  |                                   |
|   | This is not an Annex I habitat or a qualifying habitat for the Bandon River SAC.   |                                   |
| Acid oligotrophic<br>lakes FL2<br>Outside works   | A small pond of standing water is located adjacent to the existing hardcore area. It supports some aquatic vegetation including Bog Pondweed <i>Potamogeton polygonifolius</i> and Rush <i>Juncus sp.</i> No signs of breeding frog were recorded.   | Local importance<br>(lower value) |
| area  | This is not a qualifying habitat for the Bandon River SAC.   |                                   |
|   | This habitat has links with Annex I: Acid oligotrophic lakes correspond to two annexed habitats, 'oligotrophic waters  |                                   |

| Habitat  | Comments  | Ecological value<br>(NRA)          |
|--|---|------------------------------------|
|  | containing very few minerals of sandy plains (Littorelletalia<br>uniflorae) (3110)' and 'oligotrophic to mesotrophic standing waters<br>with vegetation of the Littorelletea uniflorae and/or of the Isoëto-<br>Nanojuncetea (3130)'. However, the FL2 habitat within the survey<br>area is not an example of this habitat type.  |                                    |
| Wet willow-alder-<br>ash woodland<br>WN6/ Oak-birch-<br>holly woodland<br>WN1<br>Outside works<br>area | To the northeast of the proposed development site is an area of wet woodland which grades into drier woodland dominated by Silver birch.<br>The broad category Wet willow-alder-ash woodland WN6 includes woodlands of permanently waterlogged sites that are dominated by willows (Salix spp.), Alder ( <i>Alnus glutinosa</i> ) or Ash ( <i>Fraxinus excelsior</i> ), or by various combinations of some or all of these trees. It includes woodlands of lakeshores, stagnant waters and fens, known as carr, in addition to woodlands of spring-fed or flushed sites.<br>The wet woodland in proximity and downgradient of the proposed development is dominated by Willow and the ground layer includes areas of deep sediment with Golden Saxifrage. Purple Moorgrass and Bog Myrtle are also present. On patches of drier ground closer to the Caha River Silver Birch has become established and the woodland can be classified as Oak-birch-holly woodland WN1 although the correspondence is loose. As it is dominated by Birch it is not a significant example of this habitat type. Two drains flow indistinctly through this woodland area before ultimately discharging to the Caha River. | Local importance<br>(higher value) |

| Depositing<br>Lowland<br>FW2The Caha River is located approximately 200m from the closest<br>point of the works area where it crosses beneath Poulnaberry<br>Bridge This stretch of the river has a low gradient and flows are<br>sluggish. Growth of Water Crowfoot Ranunculus aquatilis is<br>extensive and this is the dominant aquatic flora. Other species<br>recorded within this section of the river were Starwort Callitriche sp.<br>and pondweed Potamogeton sp.Local importance<br>(higher value)  | Habitat   |                | Comments  | Ecological<br>(NRA)           | value |
|---|---|----------------|---|-------------------------------|-------|
| The substrate consists primarily of relatively clean gravels. The works area located approximately 200 m from the Caha River which is not within the Bandon River SAC this high up the catchment. The closest point of the Bandon River SAC is located approximately 2.8km downstream of Poulnaberry Bridge. The qualifying interests for the Bandon River SAC includes Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and Callitricho-Batrachion vegetation [3260] and two aquatic species <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] and <i>Lampetra planeri</i> (Brook Lamprey) [1096]. Freshwater Pearl Mussel and River Lamprey could occur in the Caha River in proximity to the proposed development, however conditions for Freshwater Pearl Mussel in particular are not ideal. The habitat <i>Ranunculion fluitantis</i> and Callitricho-Batrachion vegetation [3260] could also occur, although the dominance of Water Crowfoot is likely to reduce to value of this habitat in this section of the river. | Depositing<br>Lowland<br>FW2<br>Outside<br>area | River<br>works | The Caha River is located approximately 200m from the closest<br>point of the works area where it crosses beneath Poulnaberry<br>Bridge This stretch of the river has a low gradient and flows are<br>sluggish. Growth of Water Crowfoot <i>Ranunculus aquatilis</i> is<br>extensive and this is the dominant aquatic flora. Other species<br>recorded within this section of the river were Starwort <i>Callitriche</i> sp.<br>and pondweed <i>Potamogeton</i> sp.<br>The substrate consists primarily of relatively clean gravels. The<br>works area located approximately 200 m from the Caha River<br>which is not within the Bandon River SAC this high up the<br>catchment. The closest point of the Bandon River SAC is located<br>approximately 2.8km downstream of Poulnaberry Bridge. The<br>qualifying interests for the Bandon River SAC includes Water<br>courses of plain to montane levels with the <i>Ranunculion fluitantis</i><br>and Callitricho-Batrachion vegetation [3260] and two aquatic<br>species <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel)<br>[1029] and <i>Lampetra planeri</i> (Brook Lamprey) [1096]. Freshwater<br>Pearl Mussel and River Lamprey could occur in the Caha River in<br>proximity to the proposed development, however conditions for<br>Freshwater Pearl Mussel in particular are not ideal. The habitat<br><i>Ranunculion fluitantis</i> and Callitricho-Batrachion vegetation [3260]<br>could also occur, although the dominance of Water Crowfoot is<br>likely to reduce to value of this habitat in this section of the river. | Local impor<br>(higher value) | tance |



Figure 4. Drainage channels at proposed development site









Plate 5: Drainage ditch which is piped under hardcore and existing road.

Plate 6: Caha River upstream of bridge into which drainage ditches discharge. Sluggish flows and dense macrophyte growth



Plate 7: Northern section of works with conifers evident in wider landscape.



Plate 8. Felling of forestry south of R585 observed during November site visit



Plate 9. Strong flows during November visit in the drainage ditch to south of site



Plate 10. Flow rapidly dissipates within wet woodland habitat



Plate 11. Caha River downstream of proposed development site

## 6. Flora

The National Biodiversity Data Centre's (NBDC) online database provides data on the distribution of species within 10km grid squares. The site of the proposed development lies within 10km grid square (hectad) W25 of Ordnance Survey Ireland's National Grid System. The NBDC lists 192 flora species as being present within grid square W25. However there are no endangered and protected flowering plants recorded within W25.

No rare species were recorded during the site survey, nor are they expected to occur given that the proposed development area has been significantly modified and largely cleared of vegetation.

## 7. Fauna

### 7.1 Otter

Otters (*Lutra lutra*), along with their breeding and resting places are protected under the provisions of the Wildlife Act 1976, as amended by the Wildlife (Amendment) Act, 2000. Otters have additional protection because of their inclusion in Annex II and Annex IV of the Habitats Direct which is transposed into Irish law in the European Communities (Natural Habitats) Regulations (S.I 94 of 1997), as amended. Otters are also listed as requiring strict protection in Appendix II of the Berne Convention on the Conservation of European Wildlife and Natural Habitats and are included in the Convention on International Trade of Endangered species (CITES).

Although rare in parts of Europe they are widely distributed in the Irish countryside in both marine and freshwater habitats. Otters are solitary and nocturnal and as such are rarely seen. Thus, surveys for Otters rely on detecting signs of their presence. These include spraints (faeces), anal gland secretions, paths, slides, footprints and remains of prey items. Spraints are of particular value as they are used as territorial markers and are often found on prominent locations such as grass tussocks, stream junctions and under bridges. In addition, they are relatively straightforward to identify.

Otters occasionally dig out their own burrows but generally they make use of existing cavities as resting placing or for breeding sites. Suitable locations include eroded riverbanks, under trees along rivers, under fallen trees, within rock piles or in dry drainage pipes or culverts etc. If ground conditions are suitable the holt may consist of a complex tunnel and chamber system. Otters often lie out above ground especially within reed beds where depressions in the vegetation called "couches" are formed. (NRA, 2005b). Generally, holts or resting areas can be located by detecting signs such as spraints or tracks.

In contrast natal holts which are used by breeding females can be extremely difficult to locate. They are often located a considerable distance from any aquatic habitats and Otters may also use habitats adjoining small streams with minimal or no fish populations. In addition, natal holts are usually carefully hidden and without obvious sprainting sites. Otters do not have a well-defined breeding season.

It is noted that Otters are largely nocturnal, particularly in areas subject to high levels of disturbance as evidenced by the presence of Otters in the centre of Irish cities. Thus, Otters are able to adapt to increased noise and activity levels; however, breeding holts are generally

located in areas where disturbance is lower. A review of NBDC records within the 2km square (W25E) which overlaps with the proposed development site has no records of Otter. However, Otters are known to forage in the Caha River (Source NDBC). No Otter holts were recorded during site surveys within 150m of the proposed development site.

#### 7.2 Bats

In Ireland, nine species of bat are currently known to be resident. These are classified into two Families: the *Rhinolophidae* (Horseshoe bats) and the *Vespertilionidae* (Common bats). The lesser horseshoe bat *Rhinolophus hipposideros* is the only representative of the former Family in Ireland. All the other Irish bat species are of the latter Family and these include three pipistrelle species: common *Pipistrellus pipistrellus*, soprano *Pipistrellus. pygmaeus* and Nathusius' *Pipistrellus. nathusii*, four *Myotids*: Natterer's *Myotis nattereri*, Daubenton's *Myotis daubentonii*, whiskered *Myotis mystacinus*, Brandt's *Myotis brandtii*, the brown long-eared *Plecotus auritus* and Leisler's *Nyctalus leisleri* bats.

Near threatened status is applied to those taxa that are close to being listed as vulnerable (facing a high risk of extinction in the wild in the medium-term future on the basis of a range of criteria defined by the IUCN). All bat species is Ireland, with the exception of Leisler's Bat are listed as "Least Concern". Leisler's bat which is "Near-threatened" (Marnell *et al.* 2009). The Irish population of the Lesser Horseshoe Bat is estimated at 14,000 individuals and is considered of International Importance because the species has declined dramatically and become extinct in many other parts of Europe. Data collected shows that the species increased significantly between from the early 1990s to present.

All bat species are protected under the Wildlife Acts 1976, as amended which make it an offence to wilfully interfere with or destroy the breeding or resting place of all species; however, the Acts permit limited exemptions for certain kinds of development. All species of bats in Ireland are listed in Schedule 5 of the 1976 Act and are therefore subject to the provisions of Section 23 which make it an offence to:

- Intentionally kill, injure or take a bat
- Possess or control any live or dead specimen or anything derived from a bat
- Wilfully interfere with any structure or place used for breeding or resting by a bat
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose.

In addition to domestic legislation bats are also protected under the EU Habitats Directive (92/43/EEC) with all bat species are listed in Annex IV of the Directive. Lesser Horseshoe Bat is s further listed in Annex II of the EU Habitats Directive The level of protection offered to Lesser Horseshoe Bats effectively means that areas important for this species are designated as Special Areas of Conservation. The domestic legislation that implements this Directive gives strict protection to individual bats and their breeding and resting places. It should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to derogate under the European Communities (Birds and Natural Habitats) Regulations 2011 (which transposed the EU Habitats Directive into Irish Iaw) issued by the National Parks and Wildlife Service (NPWS).

The Irish government is also a signatory to the 1979 Bonn convention (Convention on the conservation of migratory species of wild animals) and the 1982 Bern convention (The convention on the conservation of European wildlife and natural habitats) and has a commitment to the 1991 Eurobats agreement (Agreement on the conservation of bats in Europe).

A review of existing bat records within grid square W25 (sourced NBDC) showed that six bat species have been recorded locally (**Table 3**). It is noted that other species which have not been included within this database are also likely to occur. Lesser Horseshoe Bat has not been recorded within W25. However, there are records of this species to the west of Dunmanway near Carrigaphuca approximate 4.3km southwest of the proposed development site. While the remaining Irish bat species; Nathusius' Pipistrelle and Whiskered Bat have not been recorded in the local area to date, Whiskered bats could occur as these species are widespread in the Irish countryside. Nathusius' pipistrelle (and Brandt's bat) are rarer Irish species, which are less likely to occur.

| Common name                   | Scientific name                      | Presence |
|-------------------------------|--------------------------------------|----------|
| Lesser Horseshoe Bat          | Rhinolophus hipposideros             | Absent   |
| Pipistrelle                   | Pipistrellus pipistrellus sensu lato | Present  |
| Soprano Pipistrelle           | Pipistrellus pygmaeus                | Present  |
| Nathusius' Pipistrelle        | Pipistrellus nathusii                | Absent   |
| Natterer's Bat                | Myotis nattereri                     | Present  |
| Daubenton's Bat               | Myotis daubentoniid                  | Present  |
| Whiskered Bat                 | Myotis mystacinus                    | Absent   |
| Brown Long Eared Bat          | Plecotus auritus                     | Present  |
| Leisler's Bat/ Lesser Noctule | Nyctalus leisleri                    | Present  |

#### Table 3. Presence of Irish bat species within W25

NBDC 06/12/22

A study by Lundy *et al.* (2011) examined the relative importance of landscape and habitat associations across Ireland. Maximum Entropy Models (MEM) were constructed for each bat species using records from the National Bat Database from 2000-2009. This method allows species' records that have not been collected in a systematic survey to be analysed. The results help explain patterns of species' occurrence and predict where species might occur. Landcover (CORINE), topography, climate, soil pH, riparian habitat and human bias factors were incorporated into the models. The analyses provide a picture of the broad scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species. This also provides a 'habitat suitability' index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The habitat indices for all Irish bats for the landscape around the proposed development site is shown in **Table 4**.

| Bat species           | Common Name          | Habitat indices |
|-----------------------|----------------------|-----------------|
| All Bats              |                      | 26.67           |
| Pipistrellus pygmaeus | Soprano pipistrelle  | 34              |
| Plecotus auratus      | Brown long-eared bat | 45              |

#### Table 4. Model Predicted Habitat suitability indices for all Irish bat species

| Bat species               | Common Name            | Habitat indices |
|---------------------------|------------------------|-----------------|
| Pipistrellus pipistrellus | Common pipistrelle     | 37              |
| Rhinolophus hipposideros  | Lesser horseshoe       | 10              |
| Nyctalus leisleri         | Leisler's bat          | 30              |
| Myotis mystacinus         | Whiskered bat          | 27              |
| Myotis daubentoniid       | Daubenton's bat        | 25              |
| Pipistrellus nathusii     | Nathusius' pipistrelle | 0               |
| Myotis nattereri          | Natterer's bat         | 32              |

Source: NBDC 06/12/22

Evidence of bat activity associated with potential roost sites includes bat droppings, urine staining, feeding remains and dead/alive bats. Indicators that potential roost locations and access points are likely to be inactive include the presence of cobwebs and general detritus within the apertures. Potential roost features associated with trees include cracks, crevices, loose bark, woodpecker holes and splits. Evidence indicating bat presence, includes dark stains running below holes or cracks, bat droppings, odours, or scratch marks.

Bats generally make use of large mature trees that contain natural holes, cracks/splits in major limbs, loose bark, hollows/cavities, dense epicormic growth (bats may roost within it) and bird and bat boxes. The importance of trees to bats varies with species, season and foraging behaviour. For Leisler's bats, trees are essential for both summer and winter roosts while Daubenton's and Natterer's bats utilise trees more often during the summer months. Other species such as brown long-eared bats and pipistrelle bats avail of trees in the winter months. In general, individual males throughout the season use tree roosts, more often, while females will use trees for temporary night roosts or night perches for consuming prey. Hollow trees are widely used by bats for both summer and winter roosts (weather dependent) and bats will roost in 'sound' trees in crevices, holes and under split bark. Bats rest, give birth, raise young and hibernate in tree holes, crevices and beneath loose bark. Species of trees utilised by bats include Oak, ash, beech and Scots pine. Trees, especially native ones also play host to numerous insect species which are prey items for bat species. Trees also provide shelter for swarming insects which bats will avail of. In addition, trees are important commuting routes for bats.

There are no trees or structures within the proposed development site. While bats are likely to occasionally overfly the site while commuting between foraging grounds, the proposed development site has negligible value for foraging or roosting bats.

#### 7.3 Other terrestrial mammals

Twelve other species of terrestrial mammal have been recorded within grid square W25. Seven of these are protected under the Irish Wildlife Act; namely Badger (*Meles meles*), Red Squirrel (*Sciurus vulgaris*), Sika Deer (*Cervus nippon*), Irish Hare (*Lepus timidus subsp. hibernicus*), Irish Stoat (*Mustela erminea subsp. hibernica*), Pine Marten (*Martes martes*) and Hedgehog (*Erinaceus europaeus*).

#### 7.3.1 Badger

Badgers and their setts are protected under the provisions of the Wildlife Act 1976, as amended, and it is an offence to intentionally, knowingly or unknowingly kill or injure a protected species, or to wilfully interfere with or destroy the breeding site or resting place of a protected wild animal. Badger setts are formed by a complex group of interlinked tunnels, and therefore works in proximity to setts can potentially cause damage a protected species. Badgers are also protected under Appendix III of the Berne. Badgers are known to occur within the wider landscape (NBDC). The NBDC has 105 records of badger within W25, the most recent sighting in December 2016. No signs of Badger were recorded during the proposed development site surveys and due to the habitats present within the proposed site, including the road network, Badger are unlikely to be present.

#### 7.3.2 Irish hare

Irish Hare is one of three lagomorphs found on the Island of Ireland and the only native lagomorph. It is listed on Appendix III of the Berne Convention, Annex V(a) of the EC Habitats Directive (92/43/EEC) and as an internationally important species in the Irish Red Data Book. No sign of hare was recorded within the proposed development site and no suitable habitat was recorded. Irish Hare is unlikely to use this site.

#### 7.3.3 Hedgehog

Hedgehog is also listed on Appendix III of the Berne Convention can be found throughout Ireland, with male hedgehogs having an annual range of around 56 hectares. Generally, hedgehogs prefer edge habitat and pasture but in recent years have begun to colonize urban areas. Due to the habitats recorded on the periphery of the proposed development site, hedgehog could potentially occur. However, the habitats within the proposed development site are of negligible value for this species.

#### 7.3.4 Irish Stoat

Irish Stoat is one of the species protected under regulations (Protection of Wild Animals) in 1980 which enabled Ireland to comply with the provisions of the Bern Convention of European Wildlife and Natural Habitats, which was ratified by Ireland in April 1982. This species could potentially pass through the proposed development site. However, the habitats within the proposed development site are of negligible value for this species.

#### 7.3.5 Red Squirrel

Red Squirrel also listed on Appendix III of the Berne Convention can be found throughout Ireland. Red squirrels feed mainly on tree seeds, although they can utilise fungi, fruit and buds as they become available in the woodland. This species has been recorded on five occasions in W25, the most recent in October 2015. While these species could potentially occur in the wider landscape, there are no suitable habitat for Red Squirrel within the proposed development site

#### 7.3.6 Sika Deer

Sike Deer is non-native to Ireland and prefers forest with dense understory, thickets, natural woodlands and commercial plantations, but will also forage in open grassy areas with dense

cover nearby. Sika Deer are highly opportunistic feeders, foraging on grasses to a range of shrubs and tree species. No evidence of this species was recorded during site surveys however this species is likely to be present in the wider landscape.

#### 7.3.7 Pine Marten

Pine Marten are listed Annex V of the EU Habitats Directive 1992 and Appendix III of the Bern Convention 1979, are habitat specialists, requiring forest or scrub habitat to exist in an area. They are adept at climbing trees as they have powerful non-retractable claws. The species is primarily active at night and individuals live in territories that can vary in size from 50 hectares to 400 hectares. Males typically have bigger territories than females and there can be partial overlap between adjacent territories. Pine Marten could potentially use the habitats on the periphery of this site, but the habitats within the proposed development site are of negligible value for this species.

#### 7.4 Reptiles and Amphibians

The NBDC list two species of amphibian in W25 i.e., Common Frog *Rana temporaria* and Smooth Newt *Lissotriton vulgaris*.

Common Frog is listed in Annex V of the EU Habitats Directive and is protected under the Wildlife Acts. The drainage ditches and wet woodland on the margins of the proposed development site could potentially provide habitat for this species. However, no signs of Common Frog was recorded during any of the site visits.

The Smooth Newt is the only member of the Urodela (the tailed amphibians) found in Ireland. While commonly encountered near water bodies, adult newts are actually terrestrial, only returning to water bodies to breed. They tend to prefer habitats that offer protection from desiccation, such as long grass, woodland and scrubland. Newts will over-winter in refugia such as woodpiles and rotting logs, which offer them some protection from the elements. The proposed development site does not provide waterbodies suitable for this species.

Common Lizard (*Zootoca vivipara*) is Ireland's only native terrestrial reptile and is so protected under the Wildlife Act. Ideal habitats for the species are south-facing, damp tussocky grassland, scrub covered hillsides, dunes or banks, and woodland tracks, and it also resides in peat bogs, dry grasslands and heathlands. This species has been recorded on occasion in W25 in 1972. This species could potentially occur at the proposed development site, however given the habitats are negligible value for this species.

#### 7.5 Birds

The National Biodiversity Centre online database lists the following Annex I of the Birds Directive with W25, Bewick's Swan (Cygnus columbianus subsp. bewickii), Kingfisher (*Alcedo atthis*), Golden Plover (*Pluvialis apricaria*), Hen Harrier (*Circus cyaneus*), Little Egret (*Egretta garzetta*), Merlin (*Falco columbarius*), Peregrine Falcon (*Falco peregrinus*) and Whooper Swan (*Cygnus cygnus*).

A bird survey was carried out in conjunction with habitat surveys in March, July and November 2022. During the survey, all birds seen or heard within the development site were recorded. The majority of birds utilising the proposed works areas were common in the local landscape.

Bird species listed in Annex I of the Birds Directive are considered a conservation priority. During the survey, all birds seen or heard within the development site were recorded. Certain bird species are listed by BirdWatch Ireland as Birds of Conservation Concern in Ireland (BOCCI). These are bird species suffering declines in population size. BirdWatch Ireland and the Royal Society for the Protection of Birds have identified and classified these species by the rate of decline into Red and Amber lists (Gilbert *et al.* 2021). Red List bird species are of high conservation concern and the Amber List species are of medium conservation. Green listed species are regularly occurring bird species whose conservation status is currently considered favourable. Species recorded within the site are shown in **Table 5**.

| Species     |                         | Birds Directive<br>Annex | BOCCI    |            |
|-------------|-------------------------|--------------------------|----------|------------|
|             |                         | I                        | Red List | Amber List |
| Blackbird   | Turdus merula           |                          |          |            |
| Robin       | Erithacus rubecula.     |                          |          |            |
| Wood Pigeon | Columba palumbus        |                          |          |            |
| Hooded Crow | Corvus cornix           |                          |          |            |
| Wren        | Troglodytes troglodytes |                          |          |            |
| Goldcrest   | Regulus regulus         |                          |          | x          |
| Goldfinch   | Carduelis carduelis     |                          |          |            |

| Table 5. Bird Specie | s recorded within | n proposed | development site |
|----------------------|-------------------|------------|------------------|
|----------------------|-------------------|------------|------------------|

The species noted are generally common in forestry/agricultural habitats. None of the bird species recorded are particularly rare or uncommon. The habitats within the proposed development site have limited value for foraging birds due the presence the occasional seed bearing species within recolonising bare ground or due to the presence of invertebrates following heavy rain. However, there is no habitat for breeding birds within the works area.

#### 7.6. Invasive Species

Non-native plants are defined as those plants which have been introduced outside of their native range by humans and their activities, either purposefully or accidentally. Invasive non-native species are so-called as they typically display one or more of the following characteristics or features: (1) prolific reproduction through seed dispersal and/or re-growth from plant fragments; (2) rapid growth patterns; and, (3) resistance to standard weed control methods.

Where a non-native species displays invasive qualities and is not managed it can potentially: (1) out compete native vegetation, affecting plant community structure and habitat for wildlife; (2) cause damage to infrastructure including road carriageways, footpaths, walls and foundations; and, (3) have an adverse effect on landscape quality. The NBDC lists a number of high impact invasive species which have been recorded within grid square W25 (**Table 6**).

#### Table 6. NBDC list of high impact invasive species recorded within W25

| Species group      | Species name                                    |  |
|--------------------|---|--|
| bird               | Canada Goose (Branta canadensis)                |  |
| flowering plant    | Canadian Waterweed (Elodea canadensis)          |  |
| flowering plant    | Indian Balsam ( <i>Impatiens glandulifera</i> ) |  |
| flowering plant    | Japanese Knotweed (Fallopia japonica)           |  |
| terrestrial mammal | American Mink ( <i>Mustela vison</i> )          |  |
| terrestrial mammal | Brown Rat (Rattus norvegicus)                   |  |
| terrestrial mammal | Sika Deer (Cervus nippon)                       |  |

NBDC 06/12/22

The control of invasive species in Ireland comes under the Wildlife (Amendment) Act 2000, where it states that

'Any person who— [...] plants or otherwise causes to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores of flora, ['refers only to exotic species thereof'][...] otherwise than under and in accordance with a licence granted in that behalf by the Minister shall be guilty of an offence.'

The Birds and Natural Habitats Regulations 2011 (SI 477 of 2011), Section 49(2) prohibits the introduction and dispersal of species listed in the Third Schedule, which includes Japanese Knotweed and Himalayan Balsam, as follows: "any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow [....] shall be guilty of an offence."

No scheduled invasive were recorded within the works area.

## 8. Water Quality

The Water Framework Directive (WFD) sets out the environmental objectives which are required to be met through the process of river basin planning and implementation of those plans. Specific objectives are set out for surface water, groundwater and protected areas. The challenges that must be overcome in order to achieve those objectives are very significant. Therefore, a key purpose of the River Basin Management Plan (RBMP) is to set out priorities and ensure that implementation is guided by these priorities.

The third-cycle RBMP aims to build on the progress made during the first cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has resulted in significant progress in terms both of compliance levels and of the impact of urban waste-water on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first and second cycles.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of our water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are At Risk of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. Data relating to the 3<sup>rd</sup> Cycle of the WFD is provided in **Table 7** and the location of these shown in **Figure 5**.

#### Table 7. WFD Status

Catchment: Bandon-Ilen (Code 20\_8) –3rd Cycle

This catchment includes the area drained by the Rivers Bandon and Ilen, and all streams entering tidal water between Templebreedy Battery and Mizen Head, Co. Cork, draining a total area of 1,803 km2. The largest urban centre in the catchment is Bandon. The other main urban centres are Kinsale, Clonakilty, Skibbereen and Dunmanway. The total population of the catchment is approximately 71,210 with a population density of 39 people per km2.

The Bandon River rises on the slopes of the Maughanaclea Hills and flows east where it is joined by the Shanacrane East, Shehy Beg and Caha Rivers. The Bandon then flows past Dunmanway, before turning east and flowing along a limestone-floored valley lying between ridges of sandstone uplands, typical of the south Munster landscape.

The Bandon Ilen catchment comprises 17 subcatchments with 87 river water bodies, six lakes, 25 transitional and coastal water bodies, and five groundwater bodies. There are no heavily modified or artificial water bodies in the Bandon Ilen Catchment.

Proposed Development Site

The proposed development site is located within the Bandon\_SC\_010 sub-catchment. One out of four river water bodies is AT RISK, Caha\_020 due to not meeting its High Ecological Status objective. Lake water body Coolkellure is also AT RISK due to Moderate ecological status (driven by chlorophyll, phytoplankton and ammonia).

Siltation may be an issue within Caha\_020 with quarries and forestry identified as likely significant pressures. Forestry was also identified as the likely significant pressure within Coolkellure.

| Waterbodies relevant to the proposed project (2 <sup>no</sup> Cycle) |             |                        |                         |   |  |
|--|-------------|------------------------|-------------------------|---|--|
| Waterbody  | WFD Risk    | WFD Status (2013-2018) | Significant<br>Pressure | Pressure Category   |  |
|  |             | (2013-2010)            | Tressure                | WFD Status  |  |
| Caha_010   | Not at risk | High                   | No                      | NA  |  |
| Caha_020   | At risk     | Good                   | Yes                     | Forestry, agriculture, extractive industry, other anthropogenic pressures |  |
| Bandon_020   | Not at risk | Good                   | No                      | NA  |  |

Source: EPA envision mapping and <u>www.catchments.ie</u> : Accessed: 27/04/22



Figure 5. WFD 3<sup>rd</sup> cycle - waterbodies in the vicinity of the proposed development | Source: EPA Envision mapping |

### 9. Evaluation of Potential Impacts

During construction, potential impacts could arise from increased noise and disturbance which could result in the disturbance/displacement of birds and mammals. It is noted that the remaining construction works are expected to be carried out over a 2 to 3 week period. There will be a short-term loss of terrestrial habitats. During operation noise levels will return to previous levels. Increased dust levels during construction could have localised impacts on vegetation and habitats.

Discharges of silt or other tarmacadam were they to occur through inadequate control of surface water run-off, could impact on fisheries habitat and the aquatic ecology of the Caha River and subsequently other watercourses downstream including the River Bandon. Minor spills of hydrocarbons during construction could impact on groundwater or surface water quality with resultant impacts on aquatic ecology.

It is noted that impacts on Natura 2000 sites are specifically addressed in the AA screening/NIS which accompanies this application.

#### 9.1 Do Nothing' Impact

Most of the habitats to be affected have been significantly modified from the natural state by human activity. If habitats were left unmanaged a general pattern of succession from grassland/scrub to woodland would be expected to occur on the partially development site. If sufficient time elapsed without development, the unused areas of the proposed development area would be expected to develop a covering scrub/woodland with a mix of native and introduced species.

#### 9.2 Impact Appraisal

When describing changes/activities and impacts on ecosystem structure and function, important elements to consider include positive/negative, extent magnitude, duration, frequency and timing, and reversibility (IEEM, 2018).

Section 3.7 of the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'*, (EPA 2022) provides standard definitions which have been used to classify the effects in respect of ecology. This classification scheme is outlined below in **Table 8**.

| Impact<br>Characteristic | Term                  | Description  |  |
|--------------------------|-----------------------|--|--|
|                          | Positive              | A change which improves the quality of the environment.          |  |
| Quality                  | Neutral               | No effects or effects that are imperceptible, within normal      |  |
|                          |                       | bounds of variation or within the margin of forecasting error.   |  |
|                          | Negative              | A change which reduces the quality of the environment.           |  |
| Significance             | Imperceptible         | An effect capable of measurement but without significant         |  |
|                          |                       | consequences.  |  |
|                          | Not Significant       | An effect which causes noticeable changes in the character       |  |
|                          |                       | of the environment but without significant consequences.         |  |
|                          | Slight                | An effect which causes noticeable changes in the characte        |  |
|                          |                       | of the environment without affecting its sensitivities.          |  |
|                          | Moderate              | An effect that alters the character of the environment in a      |  |
|                          | 0: :5 :               | manner consistent with existing and emerging trends.             |  |
|                          | Significant           | An effect, which by its character, magnitude, duration or        |  |
|                          | V and Oiser if a suct | Intensity alters a sensitive aspect of the environment.          |  |
|                          | Very Significant      | An effect which, by its character, magnitude, duration or        |  |
|                          |                       | intensity significantly alters most of a sensitive aspect of the |  |
|                          | Drofound              | An offect which obliterates consitive obstactoristics            |  |
| Duration                 | Momentary Effects     | All effects leating from accords to minutes                      |  |
| Erequency                | Brief Effects         | Effects lasting loss than a day                                  |  |
| riequency                | Tomporary Effects     | Effects lasting less than a year                                 |  |
|                          | Short-term            | Effects lasting one to seven years                               |  |
|                          | Medium-term           | Effects lasting one to seven years.                              |  |
|                          | Long-term             | Effects lasting fifteen to sixty years                           |  |
|                          | Permanent             | Effects lasting over sixty years                                 |  |
|                          | Reversible Effects    | Effects that can be undone                                       |  |
|                          | Frequency             | Describe how often the effect will occur (once rarely            |  |
|                          | Troquonoy             | occasionally, frequently, constantly – or hourly, daily,         |  |
|                          |                       | weekly, monthly, annually)                                       |  |
|                          | Irreversible          | When the character, distinctiveness, diversity, or               |  |
|                          |                       | reproductive capacity of an environment is permanently           |  |
|                          |                       | lost.  |  |
|                          | Residual              | Degree of environmental change that will occur after the         |  |
|                          |                       | proposed mitigation measures have taken effect.                  |  |
|                          | Synergistic           | Where the resultant effect is of greater significance than the   |  |
|                          |                       | sum of its constituents.   |  |
|                          | 'Worst Case'          | The effects arising from a development in the case where         |  |
|                          |                       | mitigation measures substantially fail.                          |  |

#### Table 8. EPA Impact Classification

## **10. Potential Impacts on Terrestrial Habitats**

Impacts on terrestrial habitats are generally restricted to direct removal of habitats. Indirect impacts may occur via damage and disturbance arising from vehicular activities and storage of overburden and materials. Levels of dust during construction are predicted to be low and effectively managed by mitigation. The impact on vegetation in adjoining habitats from windblown dust is predicted to be imperceptible. No rare floral species were recorded within the study area. No scheduled or high-risk invasive species were recorded within the proposed development site or works area and no impact from invasive species is predicted to occur. Based on the criteria outlined by EPA 2022, as described above, the predicted impacts are detailed in **Table 9**.

| Habitat   | Ecological value (NRA)            | Predicted Impact   |
|---|-----------------------------------|--|
| Buildings and artificial surfaces BL3 /Spoil<br>and bare ground ED2/ Dry meadow and<br>grassy verge GS2 | Local importance (lower<br>value) | ED2 and GS2 habitat along the<br>new road will be removed once<br>the area is resurfaced. It is noted<br>that the old section of the R585<br>will be left in situ to minimise<br>ground disturbance and will be<br>colonised by early successional<br>and scrub species over time.<br>Negative, imperceptible, long-<br>term |
| Drainage ditches FW4  | Local importance (lower value)    | Outside works area. No direct<br>impact on this habitat.<br>Neutral, imperceptible, long-term  |
| Acid oligotrophic lakes FL2   | Local importance (lower value)    | Outside works area. No direct<br>impact on this habitat.<br>It is noted that habitat protection<br>measures will be put in place to<br>protect this habitat during<br>construction works.  |
| Wet willow-alder-ash woodland WN6/ Oak-<br>birch-holly woodland WN1                                     | Local importance (higher value)   | Outside works area. No direct impact on this habitat.  |
| Depositing Lowland River FW2  | Local importance (higher value)   | Outside works area. No direct impact on this habitat.  |

#### Table 9. Predicted impacts as a result of the proposed development

## **11. Potential Impacts on Fauna**

#### **11.1 Protected Mammals**

Although the habitats to be directly affected may form part of the territories of various mammal species, they do not provide critical resources for mammal species. Higher value habitats located adjacent to the road improvement works will not be impacted by the proposed development Increased noise and disturbance are predicted to occur during construction. However, works are expected to be completed within 2-3 weeks and no significant noise/disturbance impacts are predicted to occur. Noise and disturbance will return to baseline levels, in line with existing traffic on the R585, during operation. The predicted noise level will not be excessive in the context of normal domestic and road traffic levels in this area.

There will be no significant loss of habitat as a result of the proposed development. The new road will replace a section of old road. The old road will be allowed to recolonise naturally following completion of works. Given its location adjacent to a busy road, this is unlikely to provide any significant habitat for mammal species. However, any mammals which pass through this are habituated to existing traffic/noise levels. Overall, the impact on mammals will be neutral, imperceptible and long-term.

#### 11.1.1 Bats

The proposed development site has no suitable foraging or roosting habitat for bats. No tree removal is required for the works and no impact on bats is predicted to occur.

Lighting deters some bat species in particular Myotis species, from foraging (Azam *et al.* 2018). Studies have shown that illumination levels as low as 0.06 lux can influence the behaviour of bats. As construction works will largely be confined to daytime hours, lighting during the construction phase will be minimal and there will no impact on foraging bats. However, as a precautionary measure construction lighting mitigation measure have been specified in **Section 13.4** of this report to ensure there is no light spillage onto surrounding habitats. No lighting is required during operation of the road.

Overall, the of the proposed development will be neutral, imperceptible and long-term on local bat populations.

#### 11.1.2 Otter

No Otter breeding holts were recorded during the site surveys within 150m of the proposed development. Otters are known to forage within the Caha River. However, there are no habitats of value for Otter within the proposed development site.

The proposed development will result in an increase in noise and disturbance during the construction phase during daytime hours. However, given Otter's largely nocturnal habits, ability to move away from this temporary disturbance and ability to habituate to anthropogenic noise and disturbance, the impact on Otter during construction will not be significant. The proposed development site is located on an existing busy road and any Otters which pass through this are habituated to existing traffic/noise levels. Overall, the impact on Otter is predicted to be neutral, imperceptible and long-term.

#### 11.2 Birds

The terrestrial bird species recorded within the proposed development site are typical for the terrestrial habitats onsite and are generally common. No rare or uncommon bird species or species of high conservation value were recorded or are likely to occur within the development boundary. There will be no loss of breeding habitat for bird species.

Some displacement of feeding birds may occur during construction due to increased noise and disturbance. Disturbance can cause sensitive species to deviate from their normal, preferred behaviour, resulting in stress, increased energy expenditure and, in some cases, species mortality. However, works are expected to be completed within 2-3 weeks and no significant noise/disturbance impacts are predicted to occur.

Visible human presence and increased noise may prevent birds from nesting or foraging in retained habitats within or adjacent to the proposed development site. However, given the location of the proposed development site adjacent to an existing road, any birds which use this area are also subject to comparable levels of disturbance.

The impact on terrestrial birds is therefore predicted to be neutral, imperceptible and long-term.

#### 11.3 Impacts on other fauna

Common Frog was not recorded during the site visit, however they could potentially use wet woodland, pond and drainage ditches on the periphery of the site. There is no habitat suitable for breeding for Common Frog or other amphibians within the site boundary. The impact on other fauna is therefore predicted to be negative, slight and long-term.

#### **11.4 Potential impact on water quality**

#### 11.4.1 Impacts on water quality during the construction phase

Potential impacts on aquatic habitats which can arise from surface water emissions associated with the construction phase of the proposed development include increased silt levels in surface water run-off, inadvertent spillages of hydrocarbons from fuel and hydraulic fluid and spillage of cement.

Inadvertent spillages of hydrocarbon and/or other chemical substances during construction could introduce toxic chemicals into the aquatic environment via direct means, surface water run-off or groundwater contamination. Some hydrocarbons exhibit an affinity for sediments and thus become entrapped in deposits from which they are only released by vigorous erosion or turbulence. Oil products may contain various highly toxic substances, such as benzene, toluene, naphthenic acids and xylene which are to some extent soluble in water; these penetrate fish and can have a direct toxic effect. The lighter oil fractions (including kerosene, petrol, benzene, toluene and xylene) are much more toxic to fish than the heavy fractions (heavy paraffins and tars). In the case of turbulent waters, the oil becomes dispersed as droplets into the water. In such cases, the gills of fish can become mechanically contaminated and their respiratory capacity reduced (Svobodova *et al*, 1993). However, any such spills, in the unlikely event of their occurrence, would be minor in the context of the available dilution in the Caha River and River Bandon.

High levels of silt can impact on fish species, in particular salmonids. If of sufficient severity, adult fish could theoretically be affected by increased silt levels as gills may become damaged by exposure to elevated suspended solids levels and aquatic invertebrates may be smothered by excessive deposits of silt. In areas of stony substrate, silt deposits may result in a change in the macro-invertebrate species composition, favouring less diverse assemblages and impacting on sensitive species. Significant impacts on fish stocks could impact on Otter due to a reduction in prey availability.

Silt can be extremely harmful to Freshwater Pearl Mussel. Silt deposition on the riverbed results in formerly clean gravels become clogged with fine sediment. This prevents oxygen movement into the waters in the riverbed (interstitial) that feed the juvenile mussels, and they quickly die. Each time siltation of gravels occurs, all juvenile mussels below five years of age are killed, and in rivers with chronic siltation problems, juvenile recruitment is rare and unsustainable, and existing adult populations face extinction. Fine sediment, once introduced to a pearl mussel river, can continue to cause very serious effects on a long-term basis (Ellis 1936, Marking & Bills 1979, Naden *et al.* 2003, Araujo & Ramos 2001, Killeen *et al.* 1998. All referenced in DEHLG, 2010).

Siltation is damaging to all stages of a pearl mussel's lifecycle. Direct ingestion of silt by adult mussels can lead to rapid death. Turbidity, particularly from fine peat entering the water, causes adult mussels to clam up (they close their shells tightly and do not filter water through their siphons), a response that provides a protection against ingesting damaging fine particles. If the river water remains strongly turbid for a number of days, mussels can die from oxygen starvation, either from remaining clammed, or from ingesting contaminated water while stressed. The fine sediment subsequently provides a medium for macrophyte growth, which makes the riverbed habitat unsuitable for pearl mussels.

Aquatic plant communities may also be affected by increased siltation. Submerged plants may be stunted, and photosynthesis may be reduced. Such run-off if severe could potentially impact on water quality and thus could impact on aquatic qualifying species and habitats for the Bandon River SAC including Freshwater Pearl Mussel, Brook Lamprey, and Water courses of plain to montane levels with the *Ranunculion fluitantis* and Callitricho-Batrachion vegetation.

Due to the hydrological connection to the Caha River via the existing drainage network, there is the potential for silt in surface water run-off to impact the Caha River and Bandon River SAC. A range of mitigation procedures, including silt fencing and the use of a flood warning system, will be employed during construction to minimise the potential for impacts on water quality. Further details on surface water mitigation measures are included in **Section 13** of this report.

Following the implementation of mitigation measures there will be no significant effects on water quality during construction and it has been concluded that construction works will not have a significant adverse effect on the conservation objectives for any of qualifying species for Bandon River SAC. Surface water runoff during the construction phase. will not have an adverse effect on the integrity of the Bandon River SAC or Bandon Valley South of Dunmanway pNHA.

#### 11.4.2 Impacts on water quality during operation

Chemical contaminants in operational surface water runoff such as hydrocarbons could potentially impact on water quality and thus could impact on water quality within the Caha River and downstream within the Bandon River SAC. It is noted that the proposed road alternations will replace an existing road. The current road alignment is dangerous and the higher risk of road collision on this stretch of road leads to a potential hydrocarbon contamination risk in the event of a road traffic accident. The realignment works will reduce the risk of collision on this stretch of road and therefore reduce the risk of hydrocarbon spillage.

The existing tarmac road surface on the section of the R585 to be replaced covers an area of 2.125m<sup>2</sup>. Following development, the total road area (new and existing road) will cover an area of 5,700m<sup>2</sup>. As noted in Section 3.2, the existing road which will no longer be in active usage will not be excavated. It is expected that this will be colonised by a mixture of early successional species and scrub over time. This will minimise the earthworks/waste storage requirements of the project. Once this area has recolonised, the total road surface will be 3.575m<sup>2</sup> which will represent a minor increase in hard surfaces. In the medium to long-term there will be no significant change in surface water runoff volume or quality from the proposed development site. Surface water runoff from the works area drains through an area of wet woodland before meeting the Caha River. Large areas of this woodland flood during high rainfall conditions which naturally reduces silt levels in surface water run-off discharging to the Caha River. Given the existing drainage at the site and the small change from baseline conditions, no significant impact on hydrological regimes or water quality within the Caha River are predicted during the operational phase. Surface water runoff during the operational phase. will not have an adverse effect on the integrity of the Bandon River SAC or Bandon Valley South of Dunmanway pNHA.

## **12. Cumulative Impacts**

Cumulative impacts on fauna chiefly relate to increased noise and activity levels and potential impacts on water quality. Cumulative impacts from noise/disturbance are likely to be most pronounced during construction. Given the small scale of works, no significant increase in noise is predicted to occur. During operation, noise and disturbance levels will return to baseline levels. As this proposed development is not predicted to significantly increase long-term noise and disturbance levels or impact significantly on water quality, no significant cumulative impacts have been identified.

### **13. Mitigation Measures**

The mitigation measures have been drawn up in line with current best practice and include an avoidance of sensitive habitats at the design stage. It is clear that the mitigation measures are designed to achieve a lowering or reducing of the risk of impact to acceptable levels. The risk that the mitigation measures will not function effectively in preventing significant ecological impacts is low. The likely success of the proposed mitigation measures is high. The following mitigation measures will be implemented.

These mitigation measures take into account of CIRIA Guidelines C532 Control of Pollution from Construction Sites and CIRIA 2010 (Third Edition C692) Environmental Good Practice

*on Sites CIRIA UK* in its preparation and the execution plan shall be prepared in full compliance with these guidelines.

Construction best practice measures (of relevance in respect of any potential ecological impacts) will be implemented throughout the project, including the preparation and implementation of detailed method statements. The works will incorporate the relevant elements of the guidelines outlined below:

- NRA (2010) *Guidelines for the Management of Noxious Weeds and Non- Native Invasive Plant Species on National Roads.* National Roads Authority, Dublin.
- Murphy, D. (2004) Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites. Eastern Regional Fisheries Board, Dublin.
- IFI (2016) Guidelines on protection of fisheries during construction Works in and adjacent to waters (IFI, 2016)
- IFI (2021). Planning for watercourses in the urban environment.
- E. Murnane, A. Heap and A. Swain. (2006) Control of water pollution from linear construction projects. Technical guidance (C648). CIRIA.
- E. Murnane et al., (2006) Control of water pollution from linear construction projects. Site guide (C649). CIRIA.

All personnel involved with the project will receive an on-site induction relating to operations and the environmentally sensitive nature of the proximity the Caha River and other watercourses and Natura 2000 sites to re-emphasize the precautions that are required as well as the mitigation to be implemented. All staff and subcontractors have the responsibility to:

- Work to agreed plans, methods and procedures to eliminate and minimise environmental impacts,
- Understand the importance of avoiding pollution on-site, including noise and dust, and how to respond in the event of an incident to avoid or limit environmental impact;
- Respond in the event of an incident to avoid or limit environmental impact;
- Report all incidents immediately to their line manager;
- Monitor the workplace for potential environmental risks and alert the immediate line manager if any are observed; and
- Co-operate as required, with site inspections.

#### 13.1 Surface Water – Construction

The employment of good construction management practices will minimise the risk of pollution of soil, storm water run-off, seawater or groundwater. The Construction Industry Research and Information Association (CIRIA) in the UK has issued a guidance note on the control and management of water pollution from construction sites, *Control of Water Pollution from Construction Sites, guidance for consultants and contractors* (Masters-Williams et al 2001).

- The site boundary will be established before works commence and this boundary will be adhered to for the duration of works with no works or other site activities occurring outside this boundary.
- No machinery will be stored onsite as they will return to an off-site compound at the end of each working day
- Measures shall be put in place to minimise surface water run-off from the works area. The most vulnerable element to be protected on the site is the Caha River to the northeast of the site and the drainage ditches connecting to the river. Silt fencing along the existing drains will be upgraded as required and the need for additional silt fencing within the drainage network will be assessed. Terrastop Premium Silt Fence (or similar) will be used.
- An earth berm (shown **Figure 2**) along the northern boundary of the existing road and will prevent diffuse runoff to northern drainage ditch.
- Mixing of materials will occur within the site compound and all wash water and waste/grey water will be stored securely.
- Soil excavation will be completed during dry periods and undertaken with excavators and dump trucks.
- Excavated material will be removed on an ongoing basis and storage of excavation is unlikely to be required.
- Vegetated topsoil (as described in **Table 2**) will be remain *in situ* and allowed to recolonise naturally. No topsoil storage will be required onsite for the completion of works.
- Waste separation shall follow standard construction site protocols.
- Welfare facilities shall be provided in accordance with legal requirements. Sanitary facilities shall have proprietary foul water storage facilities which shall be tankered away on a regular basis.
- During construction, all activities will cease when a flood event arises. Cork County Council maintain an early warning system flood events for the Bandon catchment. In the event of a flood warning, mobile plant will be removed from potential flood affected areas. Operatives will also be evacuated from that portion of the site and any static plant or temporary works components will be made safe.

#### 13.2 Management of hydrocarbons and concrete

No hydrocarbons will be stored onsite as all machinery will be taken off site at the end of each working day.

A hydrocarbon spill kit shall be available on site at all times to deal with any minor hydrocarbon spill or hydraulic fluid leakage. A detailed spillage procedure will be put in place and all will be trained with respect to the relevant procedures to be undertaken in the event of the release of any sediment, hydrocarbons into a watercourse. Spill kits will be maintained on site and

relevant staff will be trained in their effective usage. All site personnel will be trained and aware of the appropriate action in the event of an emergency, such as the spillage of potentially polluting substances. In the event of spillage of any polluting substance and/or pollution of a watercourse, Environment Protection Agency, Cork County Council, Inland Fisheries Ireland and the NPWS shall be notified.

A 'just in time' delivery policy will operate for all materials required onsite e.g., tarmacadam cement etc. This will ensure that the no storage of materials is required onsite.

All vehicles and plant will be regularly inspected for fuel, oil and hydraulic fluid leaks. Suitable equipment to deal with spills will be maintained on site.

Machinery including hand-tools will never be washed in watercourses or drainage ditches.

Works will not take place during heavy rain when runoff is likely due to excess water. Shuttering will be designed to accommodate small increases in the volume of material contained within the shuttered area due to rainfall. Any excess tarmacadam or other construction material will be disposed of by removal offsite.

#### 13.3 Working Hours

The timing of construction activities, core working hours and the rate of progress of construction works are a balance between efficiency of construction and minimising nuisance and significant effects.

The core construction working hours for the proposed development will be:

• 7am – 7pm: Monday to Friday; and 8am – 2pm: Saturday.

The hours above correspond to the current construction programme.

#### 13.4 Lighting

Site lighting will typically be provided by tower mounted temporary portable construction floodlights. The floodlights will be cowled and angled downwards to minimise spillage to surrounding properties. The following measures will be applied in relation to site lighting:

- Lighting will be provided with the minimum luminosity sufficient for safety and security purposes.
- Lights will be switched off when not in use; and
- Lighting will be positioned and directed so that it does not to unnecessarily intrude on adjacent ecological receptors and structures used by protected species...
- Works will primarily take place during hours of daylight to minimise disturbance to any nocturnal mammal species.
- No operational lighting is proposed.

#### 13.5 Ecology and Landscaping

All personnel involved with the project will receive an on-site induction relating to operations and the environmentally sensitive nature of retained habitats onsite as well as the proximity of aquatic habitats and Natura 2000 sites.

The old road will be decommissioned and securely fenced to allow habitats to recolonise naturally. This will reduce the amount of excavation works required.

No significant landscaping works are required. However, disturbed areas on the periphery of the site, including the pond (oligotrophic lake habitat), will remain *in situ* and be left to recolonise naturally following construction works.

The pond (oligotrophic lake habitat) to the south of the works area will be securely fenced to protect this habitat during construction works.

The Wildlife Amendment Act 2000 (S.46.1) provides that it is an offence to cut, grub, burn or destroy any vegetation on uncultivated land or such growing in any hedge or ditch from the first of March to the 31st of August. Exemptions include the clearance of vegetation in the course of road or other construction works or in the development or preparation of sites on which any building or other structure is intended to be provided. None the less it is recommended that vegetation be removed outside of the breeding season where possible. In particular, removal during the peak-breeding season (April-June inclusive) should be avoided. Such a timeframe would also minimise the potential disturbance of breeding birds outside of the proposed development site boundary.

## 14. Conclusions

The road realignment and improvement works will impact on habitats of low local value. Habitats to be impacted are almost exclusively manmade, with the exception of small areas of recolonising bare ground and grassland. There are no trees or significant areas of vegetation within the works area which could provide nesting/roosting habitat for birds or bats.

Design measures and mitigation measures to protect water quality will ensure that no adverse impact on aquatic ecology or on designated sites (SACs, SPAs or pNHAs) and/or their conservation objectives will occur during construction or operation.

During construction, there will be a slight increase in noise and disturbance which could potentially impact on birds and mammals. However, this impact will be temporary (2-3 weeks approximately) and will not be significantly above existing disturbance levels along the R585. Noise and disturbance will return to baseline levels during operation. The old section of road will be allowed to recolonise naturally and in the medium to long-term there will be no significant change in the area of hard surfaces at the site. There will be no significant change in flow volumes of surface water or flow patterns to the Caha River during construction or operation.

Surface water runoff from the works area drains through an area of wet woodland before meeting the Caha River. Large areas of this woodland are flooded and this creates a buffer that filters out silt before the discharge to the river. Given the existing drainage at the site and the minor change from baseline conditions during operation, no significant impact on hydrological regimes or water quality within the Caha River are predicted during the operational phase.

## References

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## Appendices

#### Appendix 1. NRA 2009 Guidelines

#### Table 1: Examples of valuation at different geographical scales

| Ecological valuation: Examples  |
|---|
| International Importance:   |
| <ul> <li>'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation.</li> <li>Proposed Special Protection Area (pSPA).</li> </ul>   |
| <ul> <li>Site that fulfills the criteria for designation as a 'European Site' (see Annex III of the Habitats<br/>Directive as amended)</li> </ul>   |
| <ul> <li>Features essential to maintaining the coherence of the Natura 2000 Network.<sup>4</sup></li> <li>Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.</li> <li>Resident or regularly occurring populations (assessed to be important at the national level)5 of the following:         <ul> <li>Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or</li> <li>Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.</li> </ul> </li> </ul> |
| Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971)  |
| <ul> <li>World Heritage Site (Convention for the Protection of World Cultural &amp; Natural Heritage, 1972).</li> <li>Biosphere Reserve (UNESCO Man &amp; The Biosphere Programme).</li> <li>Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979).</li> </ul>   |
| <ul> <li>Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).</li> <li>Biogenetic Reserve under the Council of Europe.</li> <li>European Diploma Site under the Council of Europe.</li> </ul>  |
| <ul> <li>Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).<sup>6</sup></li> </ul>  |
| National Importance:  |
| <ul> <li>Site designated or proposed as a Natural Heritage Area (NHA).</li> <li>Statutory Nature Reserve.</li> <li>Refuge for Fauna and Flora protected under the Wildlife Acts.</li> <li>National Park.</li> </ul>   |
| <ul> <li>Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA);</li> <li>Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park.</li> <li>Resident or regularly occurring populations (assessed to be important at the national level)7 of the following:</li> </ul>  |
| <ul> <li>Species protected under the Wildlife Acts; and/or</li> <li>Species listed on the relevant Red Data list.</li> <li>Site containing 'viable areas'<sup>8</sup> of the habitat types listed in Annex I of the Habitats Directive.</li> </ul>  |

#### County Importance:

- Area of Special Amenity.<sup>9</sup>
- Area subject to a Tree Preservation Order.
- Area of High Amenity, or equivalent, designated under the County Development Plan.
- Resident or regularly occurring populations (assessed to be important at the County level)<sup>10</sup> of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.

- County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP, 11 if this has been prepared.
- Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.
- Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.

#### Local Importance (higher value):

• Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;

• Resident or regularly occurring populations (assessed to be important at the Local level)12 of the following:

- o Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
- o Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
- o Species protected under the Wildlife Acts; and/or
- Species listed on the relevant Red Data list.
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;
- Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.

#### Local Importance (lower value):

- Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;
  Sites or features containing non-native species that are of some importance in maintaining habitat links.
- 4 See Articles 3 and 10 of the Habitats Directive.

**5** It is suggested that, in general, 1% of the national population of such species qualifies as an internationally important population. However, a smaller population may qualify as internationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

6 Note that such waters are designated based on these waters' capabilities of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

7 It is suggested that, in general, 1% of the national population of such species qualifies as a nationally important population. However, a smaller population may qualify as nationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

8 A 'viable area' is defined as an area of a habitat that, given the particular characteristics of that habitat, was of a sufficient size and shape, such that its integrity (in terms of species composition, and ecological processes and function) would be maintained in the face of stochastic change (for example, as a result of climatic variation).

**9** It should be noted that whilst areas such as Areas of Special Amenity, areas subject to a Tree Preservation Order and Areas of High Amenity are often designated on the basis of their ecological value, they may also be designated for other reasons, such as their amenity or recreational value. Therefore, it should not be automatically assumed that such sites are of County importance from an ecological perspective.

**10** It is suggested that, in general, 1% of the County population of such species qualifies as a County important population. However, a smaller population may qualify as County important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

**11** BAP: Biodiversity Action Plan

**12** It is suggested that, in general, 1%of the local population of such species qualifies as a locally important population. However, a smaller population may qualify as locally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle