

# Screening Report for Appropriate Assessment of proposed residential development at Beechgrove, Rathangan, Co. Kildare

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for  
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## Introduction

Biodiversity is a contraction of the words 'biological diversity' and describes the enormous variability in species, habitats and genes that exist on Earth. It provides food, building materials, fuel and clothing while maintaining clean air, water, soil fertility and the pollination of crops. A study by the Department of Environment, Heritage and Local Government placed the economic value of biodiversity to Ireland at €2.6 billion annually (Bullock et al., 2008) for these 'ecosystem services'.

All life depends on biodiversity and its current global decline is a major challenge facing humanity. In 1992, at the Rio Earth Summit, this challenge was recognised by the United Nations through the Convention on Biological Diversity which has since been ratified by 193 countries, including Ireland. Its goal to significantly slow down the rate of biodiversity loss on Earth has been echoed by the European Union, which set a target date of 2010 for *halting* the decline. This target was not met but in 2010 in Nagoya, Japan, governments from around the world set about redoubling their efforts and issued a strategy for 2020 called 'Living in Harmony with Nature'. In 2011 the Irish Government incorporated the goals set out in this strategy, along with its commitments to the conservation of biodiversity under national and EU law, in the second national biodiversity action plan (Dept. of Arts, Heritage and the Gaeltacht, 2011).

The main policy instruments for conserving biodiversity in Ireland have been the Birds Directive of 1979 and the Habitats Directive of 1992. Among other things, these require member states to designate areas of their territory that contain important bird populations in the case of the former; or a representative sample of important or endangered habitats and species in the case of the latter. These areas are known as Special Protection Areas (SPA) and Special Areas of Conservation (SAC) respectively. Collectively they form a network of sites across the European Union known as Natura 2000. A recent report into the economic benefits of the Natura 2000 network concluded that "there is a new evidence base that conserving and investing in our biodiversity makes sense for climate challenges, for saving money, for jobs, for food, water and physical security, for cultural identity, health, science and learning, and of course for biodiversity itself" (EC, 2013).

Unlike traditional nature reserves or national parks, Natura 2000 sites are not 'fenced-off' from human activity and are frequently in private ownership. It is the responsibility of the competent national authority to ensure that 'good conservation status' exists for their SPAs and SACs and specifically that Article 6(3) of the Directive is met. Article 6(3) requires that an 'appropriate assessment' (AA) be carried out for these sites where projects, plans or proposals are likely to have an effect. In some cases this is obvious from the start, for instance where a road is to pass through a designated site. However, where this is not the case, a preliminary screening must first be carried out to determine whether or not a full AA is required. This screening is carried out by the Local Authority and this report can aid in that decision.

## The Purpose of this document

This document provides for the screening of a proposed residential development at a site on Beechgrove, Rathangan, Co. Kildare, and its potential effects in relation to Natura 2000 sites (SACs and SPAs). Under the Planning and Development Act 2000 (as amended), and the Birds and Natural Habitats Regulations 2011, all developments must be screened for AA by the Local Authority. This report provides the necessary information to allow Kildare County Council to carry out this screening. The project is for the construction of 18 houses on this site.

## Methodology

The methodology for this screening statement is clearly set out in a document prepared for the Environment DG of the European Commission entitled 'Assessment of plans and projects significantly affecting Natura 2000 sites 'Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (Oxford Brookes University, 2001). Chapter 3, part 1, of this document deals specifically with screening while Annex 2 provides the template for the screening/finding of no significant effects report matrices to be used.

In accordance with this guidance, the following methodology has been used to produce this screening statement:

### **Step 1: Management of the Natura 2000 site**

This determines whether the project is necessary for the conservation management of the site in question.

### **Step 2: Description of the Plan**

This step describes the aspects of the plan that may have an impact on the Natura 2000 site.

### **Step 3: Characteristics of the Natura Site**

This process identifies the conservation aspects of the site and determines whether negative impacts can be expected as a result of the plan. This is done through a literature survey and consultation with relevant stakeholders – particularly the National Parks and Wildlife Service (NPWS). All potential effects are identified including those that may act alone or in combination with other projects or plans.

Using the precautionary principle, and through consultation and a review of published data, it is normally possible to conclude at this point whether potential impacts are likely. Deficiencies in available data are also highlighted at this stage.

### **Step 4: Assessment of Significance**

Assessing whether an effect is significant must be made in light of the conservation objectives for that SAC or SPA.

If this analysis shows that significant effects are likely then a full AA will be required.

The steps are compiled into a screening matrix, a template of which is provided in Appendix II of the EU methodology.

Reference is also made to recently published guidelines for Local Authorities from the Department of the Environment, Heritage and Local Government (DoEHLG, 2009).

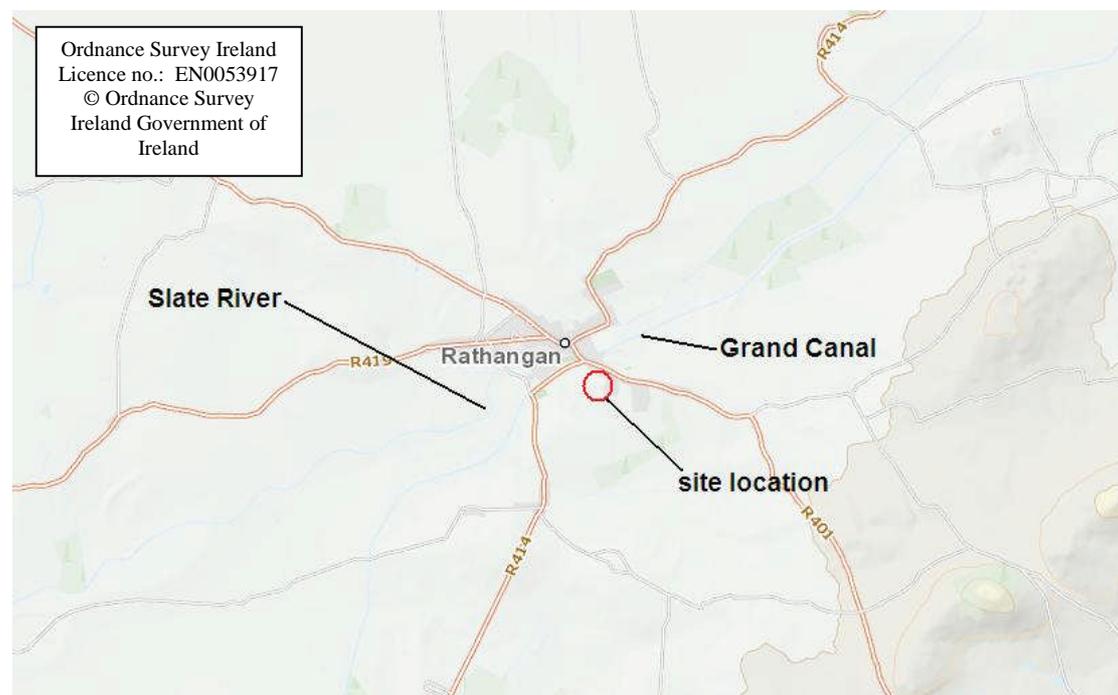
A full list of literature sources that have been consulted for this study is given in the References section to this report while individual references are cited within the text where relevant.

#### Screening Template as per Annex 2 of EU methodology:

This plan is not necessary for the management of the site and so Step 1 as outlined above is not relevant.

#### **Brief description of the project**

The site location is shown in figures 1 and 2.



**Figure 1 – Site location (red circle) (from [www.npws.ie](http://www.npws.ie)) . There are no Natura areas in this view.**

It is planned to construct an 18 home residential development on the site within the Beechgrove estate. The site has already been prepared to a certain degree, with an access road constructed and drainage infrastructure partially installed. The road and drainage are to be removed and this part of the site restored, to include a pedestrian footpath. Recent aerial photography shows remaining areas to be open grassland with some scattered trees.

A site visit was carried out on February 2<sup>nd</sup> 2017. While this is outside the optimal season for general habitat survey for a study of this nature it is essential that pathways between the project and Natura areas are identified. In this regard no constraints were encountered for this report.

The open grassland can be described as a **dry meadow – GS2** which is dominated by coarse grasses such as Cock's-foot *Dactylis glomerata* and Creeping Bent *Agrostis stolonifera*. Other common flowering plants include Rosebay Willowherb *Chamerion angustifolium*, Creeping Cinquefoil *Potentilla reptans* and Creeping Thistle *Cirsium arvense*. Due to lack of management **scrub – WS1**, a type of woodland, is emerging in some locations. This is mostly composed of Willow *Salix sp.* and Brambles *Rubus fruticosus agg.* A number of mature, broadleaved trees can be found near the existing homes, including specimens of Oak *Quercus sp.* and Beech *Fagus sylvatica*. There are also a few Ash *Fraxinus excelsior* to the south-west of the site.

Along the western boundary there is a section of **hedgerow – WL1** which is composed of Hazel *Corylus avellana*, Ivy *Hedera helix*, Hawthorn *Crataegus monogyna*, Ash, Beech and Snowberry *Symphoricarpos albus*. South of this there is a deep trench (not accompanied by a hedgerow) although this had no standing or flowing water on the day of survey. This trench continued along a section of the southern boundary. Here there is a **treeline – WL1**, which is dominated by the low ecological value Leyland Cypress *Cuprocyparis leylandii*. These features are superimposed on the site boundary and an aerial photograph in figure 2.

There are no plants growing on the site which are listed as alien invasive on Schedule 3 of SI No. 477 of 2011. There are no water courses or habitats which could be considered wetlands. There are no habitats which are examples of those listed on Annex I of the Habitat Directive.

Mapping from the OSI and the EPA indicate no water courses in the immediate vicinity of the site. The Grand Canal can be found approximately 200m to the north-west. The two areas are separated by built development and a road as well as some open ground. The Grand Canal is designated as a proposed Natural Heritage Area (site code: 2104). These areas are designated under national legislation and so do not fall within the scope of AA. To the north of the canal the River Slate flows from the north, and lies approximately 280m from the site boundary. The site is within the catchment of this river, which is a tributary of the River Barrow. While the River Slate does not fall within any designated area, the River Barrow is within the River Barrow and River Nore SAC (site code: 2162).

Wastewater from the development will pass to the Rathangan wastewater treatment plant. This plant discharges treated wastewater to the River Slate.



**Figure 2 – Site boundary (in red line) and habitats of the subject lands**

Surface water will connect to a dedicated drain leading to the Grand Canal.

The site is not located within or directly adjacent to any Natura 2000 area (SAC or SPA). The site is located close to the town centre of Rathangan which is characterised by roads and other built development. The site itself lies directly adjacent to an existing residential estate while agricultural land is found to the south. There are no significant water courses in the immediate vicinity of the site. The [www.wfdireland.net](http://www.wfdireland.net) web site shows the lands to be in the catchment of the Slate River, a tributary of the River Barrow. The main channel of this river flows approximately 280m north-west of the site boundary. The Slate River is subject to no Natura designations. Where it meets the River Barrow near Monasterevin however it enters the River Barrow and River Nore SAC.

The construction phase will involve the clearance of top soil. Any inert construction and demolition waste will be removed by a licenced contractor and disposed of in accordance with the Waste Management Act . Mature trees are to be retained within an area of amenity open space.

A new surface water drainage system is to be installed and will be separate from that of the foul sewer. This will ultimately discharge to the Grand Canal. Rates of run-off and water quality are expected to remain at a 'greenfield' standard. Foul wastewater will be treated in the municipal treatment plant for Rathangan.

Water will be supplied from a mains supply which originates from reservoirs at Ballymore Eustace, along the River Liffey. This source is supplemented by

groundwater abstraction points in the vicinity of the town. The reservoirs at Poulaphouca are designated as a SPA.

Some dust and noise can be expected during the construction phase. The operation phase will see the development occupied and this will bring with it human disturbance as well as noise and artificial light.



**Figure 3 – proposed site layout**

### Brief description of Natura 2000 sites

In assessing the zone of influence of this project upon Natura 2000 sites the following factors must be considered:

- Potential impacts arising from the project
- The location and nature of Natura 2000 sites
- Pathways between the development and the Natura 2000 network

It has already been stated that the site is not located within or directly adjacent to any Natura 2000 area. For projects of this nature an initial 2km radius is normally examined (IEA, 1995). This is an arbitrary distance however and impacts can occur at distances greater than this. Within approximately 2km there are no areas which fall within the Natura network.

The site is within the hydrological catchment of the River Barrow and there are pathways to this river from wastewater discharges. Surface water leads to the Grand Canal which is not within the Natura network. The water source originates at the Poulaphouca Reservoir SPA. These are considered to be the only Natura areas which lie within the zone of influence of this development.

#### River Barrow & River Nore SAC (site code: 2162)

The rivers Barrow and Nore are among the longest rivers in Ireland and this large SAC stretches from the Slieve Bloom mountains in the north to Creadun head in county Wexford in the south .

The River Barrow and River Nore drain a large part of the low-lying areas of Leinster and are important rivers for a wide range of aquatic or semi-aquatic habitats and species.

The reasons why the River Barrow and River Nore is an SAC are set out in the site's 'qualifying interests' and these are given in table 1.

**Table 1 – Qualifying interests of the River Barrow and River Nore SAC**

Aspect	Level of Protection	NPWS Assessment
Alluvial wet woodland (code: 91E0)	Habitats Directive Annex I priority	Bad
Old oak woodlands (code: 91A0)		Bad
Atlantic salt meadows (code: 1330)	Habitats Directive Annex I	Intermediate
Mediterranean salt meadows (code: 1410)		Intermediate
Petrifying springs with tufa formation (code: 7220)		Intermediate
Hydrophilous tall herbs (code: 6430)		Bad
Floating river vegetation (code: 3260)		Intermediate

Estuary (code: 1130)		Intermediate
Salicornia mudflats (code: 1310)		Intermediate
Dry heath (code: 4030)		Bad
Tidal mudflats (code: 1140)		Intermediate
Sea Lamprey <i>Petromyzon marinus</i> (Code: 1095)	Habitats Directive Annex II	Bad
Brook Lamprey <i>Lampetra planeri</i> (Code: 1099)		Good
Aquatic snail <i>Vertigo moulinsiana</i> (Code: 1016)		Bad
River Lamprey <i>Lampetra fluviatilis</i> (Code: 1096)	Habitats Directive Annex II, V	Good
Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> (Code: 1029)		Bad
Nore freshwater pearl mussel <i>Margaritifera margaritifera durrovensis</i> (Code: 1990)		Bad
Freshwater Crayfish <i>Austropotamobius pallipes</i> (Code: 1092)		Intermediate
Twaite Shad <i>Alosa fallax fallax</i> (Code: 1103)		Good
Atlantic Salmon <i>Salmo salar</i> (Code: 1106)		Intermediate
Otter <i>Lutra lutra</i> (Code: 1355)		Good
Killarney fern <i>Trichomanes speciosum</i> (Code: 1421)		Good
Allis shad <i>Alosa alosa</i> (Code: 1102)		Unknown

- Alluvial Wet Woodland: This is a native woodland type that occurs on heavy soils, periodically inundated by river water but which are otherwise well drained and aerated. The main pressures are identified as alien invasive species, undergrazing and overgrazing. Pollution from agricultural land may also be significant.
- Old Oak Woodlands: This native woodland type is typified by Sessile Oak *Quercus patrea*, Holly *Ilex aquifolium* and Hard Fern *Blechnum spicant*. Its range is much reduced from historic levels while the principle threats are alien invasive species and overgrazing by deer but also cattle, goats and sheep.
- Atlantic and Mediterranean salt meadows: these are intertidal habitats that differ somewhat in their vegetation composition. They are dynamic habitats that depend upon processes of erosion, sedimentation and colonisation by a typical suite of salt-tolerant organisms. The main pressures are invasion by the non-native *Spartina anglica* and overgrazing by cattle and sheep.

- Petrifying Springs: These are very localised habitats that arise from the precipitation of excess calcium carbonate in supersaturated running water. They are associated with characteristic bryophytes. They are vulnerable to changes in water quality, flow regime and intensification of land use practices.
- Hydophilous tall herbs: This is a wetland type associated with river floodplains in lowlands, although a different community applies to this classification in the uplands. It is the lowland community that is likely to be represented in the River Barrow and River Nore SAC. The main pressures listed for this habitat are grazing by cattle, invasion by the alien Himalayan Balsam *Impatiens glandulifera*, and nitrogen pollution (via both water and air deposition).
- Floating river vegetation: There is currently no satisfactory definition of this habitat type in Ireland and it is considered broad, encompassing all rivers. The NPWS says that “the main problems for river habitats in Ireland are damage through eutrophication and other processes linked to water pollution, rather than direct habitat loss and destruction.”
- Estuary: This is the portion of a river that is influenced by the tide but retaining a significant freshwater influence. Substrates can range from rocks and boulders, to expanses of fine mud and sand. They are an important resource for birds and other fauna and many estuaries have twin designations (i.e. both SAC and SPA). It is considered that the majority of estuary habitat is in good condition however approximately a quarter is negatively affected by excess nutrient input and damaging fishing practices.
- Salicornia mudflats: This is a pioneer saltmarsh community and so is associated with intertidal areas. It is dependant upon a supply of fresh, bare mud and can be promoted by damage to other salt marsh habitats. It is chiefly threatened by the advance of the alien invasive Cordgrass *Spartina anglica*. Erosion can be destructive but in many cases this is a natural process.
- Dry heath: This is a community of heather shrubs that occurs on well-drained, acidic, nutrient-poor mineral or peaty soils. Pressures on this habitat arise from high levels of sheep grazing, as well as afforestation, mining and quarrying. Unregulated burning is also identified as an important threat to the structure of this habitat.
- Tidal mudflats. This is an intertidal habitat characterised by fine silt and sediment. Most of the area in Ireland is of favourable status however water quality and fishing activity, including aquaculture, are negatively affecting some areas.
- Sea lamprey. This is an anadromous species of jawless fish. Their population densities are considered low in many catchments and are negatively affected by barriers to migration, such as weirs, dams etc. Pollution and drainage works are also identified as threats to its conservation status.
- Brook and river lamprey: These species are similar to the sea lamprey although they spend their entire life cycle in freshwater and are considerably smaller. As juveniles they are indistinguishable at the species level and are only differentiated by their size at adults. Since surveys are carried out on the juvenile life stage the two species are jointly assessed.

Although threatened by pollution, along with all aquatic life, they are assessed as being of 'good' status.

- Freshwater pearl mussel. This is one of the most threatened species in Ireland and one of a small number that is listed on the International Union for the Conservation of Nature's (IUCN) red list. Although it is long-lived, its populations have not reproduced in many years. This has been due to over-extractions for their pearls and more recently by dramatic deteriorations in water quality. Freshwater pearl mussels need exceptionally high quality water for breeding and depend upon another threatened species, the Atlantic salmon, for part of its life cycle.
- Nore freshwater pearl mussel: As above however this subspecies is confined to a sub-catchment of the upper river Nore.
- Freshwater crayfish: This crustacean is Ireland's largest species of non-marine invertebrate and is found throughout limestone river, canal and lake catchments. The greatest threats to its conservation status arise from the non-native invasive species and disease (especially associated with the American Signal crayfish which has yet to be recorded in Ireland).
- Twaité shad. This is a localised fish species in Ireland, breeding at the upper tidal reaches of rivers in the south-east. They are threatened by non-native invasive species such as Dace and the Asian clam, which are now established in the tidal reaches of the Nore/Barrow. They spend their adult life at sea and here they are susceptible to capture by industrial fisheries.
- Atlantic salmon: This once abundant fish has suffered a dramatic decline in recent decades. On land they are threatened by pollution and barriers to migration while at sea mortality may occur through industrial fisheries, parasites from aquaculture operations and climate change. The Habitats Directive only protects the salmon in its freshwater habitat and here specific conservation objectives have been set for water quality. Salmon will only spawn in clean, sediment-free beds of gravel.
- Otter: This aquatic mammal lives its entire life in and close to wet places, including rivers, lakes and coastal areas. They will feed on a wide variety of prey items. Despite local threats from severe pollution incidents and illegal fishing, its population is considered stable and healthy, and so is assessed as being of 'good' status.
- Killarney Fern: This plant was once collected by Victorian fern 'hunters' until it was nearly extirpated. It is now considered stable but remains very localised in its distribution. Its preferred habitat is dark, wet ravines and rocky cracks.
- Allis shad. Like the Twaité shad this is a fish that breeds in estuarine waters but spends much of its life as an adult at sea. It may not be an established breeding species in Irish waters as no juveniles have been recorded.

At its nearest point the Poulaphouca Reservoir SPA (site code: 4063) is located approximately 29km from the site of the proposed development. Its 'features of interest' include the Greylag Goose *Anser anser* and the Lesser Black-backed Gull *Larus fuscus*.

- **Greylag Goose.** Wintering Greylag Geese are very scattered in Ireland and occur on both coastal in inland sites. Their population has expanded greatly in their more northerly ranges (Iceland and Scotland) and this has coincided with losses elsewhere.
- **Black-headed Gull.** Widespread and abundant in winter these gulls are nevertheless considered to be in decline. The reasons behind this are unclear but may relate to the loss of safe nesting sites, drainage, food depletion and increase predation.

Whether the SAC or SPA is likely to be significantly affected must be measured against its 'conservation objectives'. Site specific conservation objectives have been set for the Barrow/Nore SAC (NPWS, 2011). This document sets specific objectives for each of the qualifying interests of the SAC. It is not considered necessary to reproduce these in their entirety but where relevant are discussed in more details later in this document.

For the SPA generic objectives are set as:

**To maintain or restore the favourable conservation condition of the Annexed habitats/species for which the SAC or SPA has been selected.**

In a generic sense 'favourable conservation status' of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

While the 'favourable conservation status' of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis (NPWS, 2016).

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### **Data collected to carry out the assessment**

The habitats on the site are not associated with any of the habitats or species listed in table 1 or which are suitable for roosting wetland birds.

The EU's Water Framework Directive (WFD) stipulates that all water bodies were to have attained 'good ecological status' by 2015. This includes rivers and the Rivers Slate and Barrow are located within the South Eastern River Basin District. In 2009 a management plan was published to address pollution

issues and includes a 'programme of measures' which must be completed. This plan was approved in 2010 (ERBD, 2010). The upper stretches of the River Slate (upstream of Rathangan) have been assessed as 'poor' or 'moderate' under the 2010-2015 reporting period. Downstream of the town this improves to 'good' status although between the towns of Bracknagh and Monasterevin the river is not assessed. The Barrow at Monasterevin meanwhile is 'poor'. These assessments indicate 'unsatisfactory' conditions along much of the River Slate and Barrow and so remedial measures will be required to achieve 'good ecological status'.

To this end a River Basin Management Plan was published in 2010 and with it a 'Programme of Measures' to achieve the targets of the WFD. This plan is currently under review. Rathangan is within the Barrow Main Water Management Unit (WMU) and this showed that only 33% of the catchment is attaining 'good' status (although these data, from 2010, may now be dated). It states that 60% of the total phosphorous source (a key nutrient leading to eutrophication) is from agriculture. Between 15-20% each is from unsewered properties and wastewater treatment plants. It states that overall improvements have been observed in the Barrow since 2000 but adds "eutrophication continued to be widespread due to suspected agriculture in the upper river and to suspected sewage and other discharges from Portlaoise and Carlow".

The Conservation Objectives document for the River Barrow and River Nore SAC shows that a number of species (features of interest) are present along the River Barrow including Atlantic Salmon and Lampreys. No habitats listed in table 1 are to be found along the River Slate and this is outside the SAC boundary. There are no records of the Killarney fern, Desmoulin's Whorl Snail or Freshwater Pearl Mussel along the Barrow downstream of Tully/Kildoon confluence. Freshwater Pearl Mussel is not found in water downstream of this project. The Barrow does provide habitat however for the White-clawed Crayfish, all Lamprey species, Atlantic salmon and Otter. It may also hold the 'floating river vegetation' habitat The Twaite shad is only found in estuarine waters.

The following conservation objectives are therefore considered to be relevant:

#### **White-clawed Crayfish**

No reduction in distribution; healthy population structure; an absence of alien crayfish species; no instances of disease; water quality at least Q3-4; no decline in heterogeneity of habitat.

#### **Sea/River/Brook Lamprey**

Maintain river accessibility (no artificial barriers); healthy population structure; healthy density of juveniles; no decline in extent or distribution of spawning beds; >50% of sampling sites positive.

#### **Atlantic Salmon**

Maintain river accessibility (no artificial barriers); size of stock measures as 'conservation limit' consistently exceeded; maintain abundance of salmon fry;

no significant decline in out-migrating smolt abundance; no decline in the number of spawning beds (redds); water quality at least Q4 at all sites.

**Otter**

No significant decline in distribution; no significant decline in terrestrial/estuarine/freshwater/lake habitat; no significant decline in couching sites or holts; no decline in available fish biomass;

**Floating river vegetation (3260)**

No decline in habitat distribution; habitat area stable; maintain hydrological regime measured as river flow and tidal influence; maintain substrate composition in tidal sub-type; water quality should be 'good status' in terms of nutrient standards, macroinvertebrate and phytoplankton elements; vegetation typical of the habitat sub-type at favourable status; areas of floodplain must be maintained.

The municipal wastewater treatment plant at Rathangan is operated by Irish Water under licence from the EPA (reference: D0175-01). This has a capacity to treat effluent from a population equivalent (P.E.) of 4,000. Mean hydraulic and organic loadings are well within this limit. The Annual Environmental Report for 2016 indicates that there were no non-compliance issues in that year and effluent met the emission limit standards set in the Urban Wastewater Treatment Directive. Meanwhile ambient monitoring of the receiving waters suggests that the discharge is "not having an observable negative impact on the WFD water quality status".

## The Assessment of Significance of Effects

*Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site.*

In order for an effect to occur there must be a pathway between the source (the development site) and the receptor (the SAC or SPA). Where a pathway does not exist an impact cannot occur.

The proposed development is not located within, or adjacent to, any SAC or SPA.

**Habitat Loss**

The site is 9km from the boundary of the nearest Natura area: the River Barrow and River Nore SAC. Because of the distance separating the site and these areas there is no pathway for loss or disturbance of habitats listed in tables 1 or other semi-natural habitats that may act as ecological corridors for important species associated with the qualifying interests of the Natura 2000 sites.

**Pollution**

There is a pathway from the site via surface water flows to the Grand Canal. This artificial waterway is not within any SAC or SPA and is indirectly connected to the River Barrow (in so far that water from the Barrow is fed into it in places). In terms of the conservation objectives of the SAC previously identified, maintaining good water quality has been stated as an objective for the White-clawed crayfish, Twaite shad, Atlantic salmon, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, floating river vegetation, and petrifying springs. Of these the highest water quality is demanded of the Freshwater Pearl Mussel and the Nore Freshwater pearl Mussel. This project is outside the catchment of these species. The required water quality relevant to this study is for the Atlantic salmon, for which Q4 (unpolluted) status is needed. This standard is currently not being met along all sections of the Slate or Barrow rivers. Poor water quality can affect Atlantic salmon by reducing available dissolved oxygen levels in water and reducing the quality of spawning habitat (Hendry et al., 2003). This arises from nutrient and sediment inputs respectively.

Surface water attenuation measures, including SUDS, will ensure that there will be no negative effect to run-off quality or quantity.

Pollutants arising from surface water run-off typically comprise of sediment and small quantities of hydrocarbon residues. During construction projects this can also include cement and other substances which are toxic to aquatic life. Sediment in particular can cause long term damage to fish habitats in freshwater systems. In this case there are no water courses in the vicinity of the site and so the risk of pollution from this source is low.

During construction phase any loss of sediment will be temporary in nature while dangerous substances such as fuel and concrete will be controlled through good site management practices. There are no effects which are likely to arise from this phase of the project which could result in significant effects to either the SAC or SPA.

Foul wastewater from the site will connect to the mains sewer and will be treated in the municipal wastewater treatment plant. This plant has been shown to be compliant with all relevant emission standards while sufficient capacity exists to receive the predicted loading from this development. There are consequently no effects predicted to occur from this source.

**Disturbance**

The development is not likely to result in disturbance effects at Natura 2000 areas due to the nature and location of the development.

**Abstraction**

There is no groundwater abstraction source that could affect ground water quantities. There is no evidence that abstraction is currently affecting the populations of Greylag Geese or Black-headed Gulls at the Poulaphouca Reservoir SPA.

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*Are there other projects or plans that together with the project or plan being assessed could affect the site?*

Eventual implementation of the WFD will result in overall improvements to water quality throughout the Barrow catchment although these targets have not been met by the 2015 deadline. In March 2017 a single river basin management plan was published for the whole country. This is in draft form and will be open for public consultation until August 2017.

Environmental water quality can be impacted by the effects of surface water run-off from areas of hard standing. These impacts are particularly pronounced in urban areas and can include pollution from particulate matter and hydrocarbon residues, and downstream erosion from accelerated flows during flood events (Mason, 1996). There will no impact to surface water quality and quantity from this development due to the incorporation of proven SUDS methods.

Some land use change has occurred in this vicinity in the past decade and which has seen agricultural land converted to built development. This can impact upon biodiversity through disturbance effects and the cumulative impact of water pollution. Impacts to water quality arising from this project have been assessed and are not predicted to result in pollution.

The subject lands have been zoned for residential development in the Kildare County Development Plan 2017-2023, and which includes a town plan for Rathangan. This plan was screened for AA and this found that significant effects were not likely to arise from its implementation.

There are no further effects which can act in combination with other similar effects, to result in significant effects to the SAC in question.

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#### *List of agencies consulted*

Nature conservation observations were sought from the Development Applications Unit of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (GPre00068/2017). A response to this had not been received at the time of writing.

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#### Conclusion and Finding of No Significant Effects

This project has been screened for AA under the appropriate methodology. It has found that significant effects are not likely to arise, either alone or in combination with other plans or projects that will result in significant effects to the integrity of the Natura 2000 network.

## References

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