Screening Report for Appropriate Assessment of proposed residential development at Crokers Hill, Kennyswell Road, Kilkenny, Co. Kilkenny

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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). A third plan was published in 2017.

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 at Crokers Hill, Kennyswell Road, Kilkenny, Co. Kilkenny, 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 Kilkenny County Council to carry out this screening, or full AA if required. The project is for the construction of 86 houses on this site along with a community facility and associated on site car parking, bicycle storage, refuse storage, landscaping and other relevant site works including two new vehicular entrances off Kennyswell Road.

It should be noted that under Article 42(1) of the aforementioned legislation it is the relevant competent authority, in this case Kilkenny County Council, which carries out any AA or screening for AA, stating:

A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.

While paragraph (2) states:

A public authority shall carry out a screening for Appropriate Assessment under paragraph (1) before consent for a plan or project is given, or a decision to undertake or adopt a plan or project is taken.

This document therefore aids in the decision making process.

Stage 1 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 Project
This step describes the aspects of the project that may have an impact on the Natura 2000 site.

Step 3: Characteristics of the Natura 2000 Sites
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).
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.

Step 2: Brief description of the project

The site location is shown in figures 1 and 2.

It is planned to construct an 86-home residential development on the site at Crokers Hill. This will include new drainage and wastewater infrastructure as well as all ancillary elements including landscaping and vehicle access. The site is currently grazing ground. Recent aerial photography shows the area to be close to the River Breagagh.

A site visit was carried out on November 13th 2019. This is outside the optimal season for general habitat survey but 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. Habitats are described here as per standard classifications (Fossitt, 2000).

The land can be described as an open area of **improved agricultural grassland – GA1** with Creeping Thistle *Cirsium arvense,* Annual Meadow-grass *Poa annua,* Perennial Rye-grass *Lolium perenne,* Dock's *Rumex sp.* and Nettle *Urtica dioica.*

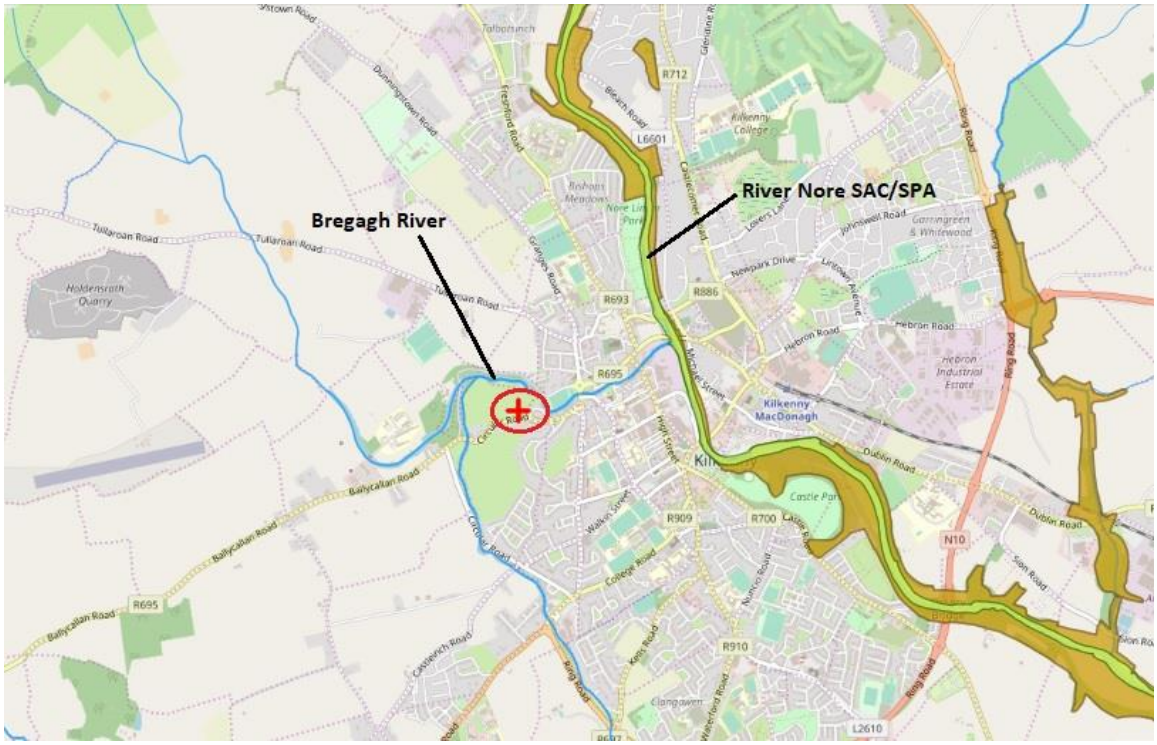

Figure 1 – Site location (red circle) and local water courses (from www.epa.ie). The boundary of the SAC is shown in tan.

Within the field there is an isolated Hawthorn *Crataegus monogyna* while field boundaries are composed of **stone walls – BL1** with some patches of Brambles *Rubus fruticosus agg.*

There are no water courses on the site and no drainage ditches etc. There are no habitats which could be considered as wetlands. The lands slopes in a northerly direction and so drainage pathways lead to the Breagagh River. This river flows from west to east and joins the River Nore in Kilkenny City. These features are shown 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 habitats which are examples of those listed on Annex I of the Habitat Directive.

The River Nore as it flows through Kilkenny City is within the River Barrow and River Nore SAC (site code: 2162) and the River Nore SPA (site code: 4233).

Wastewater from the development will pass to the Kilkenny wastewater treatment plant. This plant discharges treated wastewater to the River Nore. This project will add to the loading at this plant.

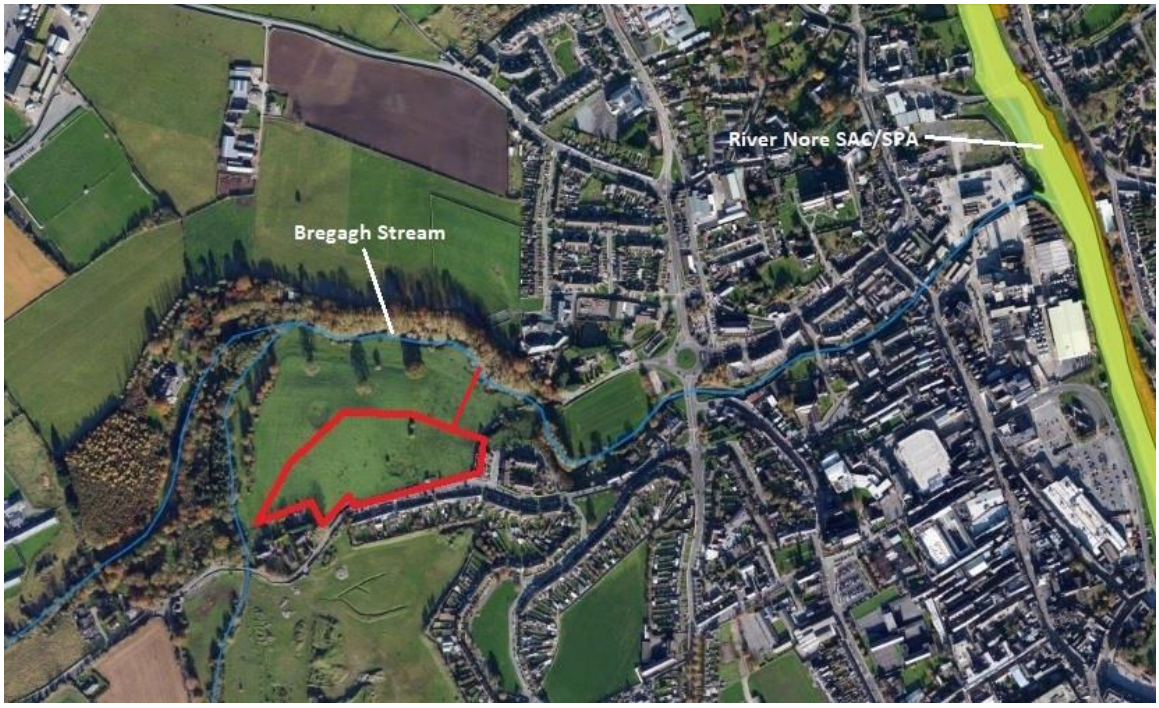

Figure 2 – Site boundary and surface water route to the river (in red line) showing location of local water courses and its proximity to Natura 2000 sites.

The site is not located within or directly adjacent to any Natura 2000 area (SAC or SPA). The site is located close to the centre of Kilkenny City which is a built-up area characterised by roads and other built development. The site itself lies close to existing residential estates albeit on the edge of the city and close to open areas

of agricultural land. The Breagagh River lies approximately 120m to the north, and as near as 20m to the west of the site boundary, and the surface topography means surface run-off will be channelled in this direction. The site is in the wider catchment of the River Nore, the main channel of which flows approximately 860m east of the site boundary as the crow flies. The Breagagh River is subject to no Natura designations. Where it meets the River Nore in Kilkenny City however it enters the River Barrow and River Nore SAC and the River Nore SPA.

The construction phase will involve site preparation and soil clearance. This will result in the loss of all habitats. Any inert construction and demolition waste will be removed by a licenced contractor and disposed of in accordance with the Waste Management Act.

Surface water will connect to a new surface water drainage system for the site. This will be entirely separate to the foul systems and conforms to SUDS principles as well as the Greater Dublin Strategic Drainage Study. This will include on-site attenuation storage with controlled release via an oil/grit interceptor. A new surface water outfall pipe and headwall is to be constructed to the River Breagagh.

Foul wastewater will be treated in the municipal treatment plant for Kilkenny City.

Water will be supplied from a mains supply which originates from an extraction point along the River Nore.

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.

The lands have been subject to a flood risk assessment IE Consulting and this has shown that areas to be developed are at ‘low’ risk of flooding.

Figure 3 – proposed site layout

Step 3: Characteristics of the 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. The site is within the hydrological catchment of the River Barrow and River Nore SAC and the River Nore SPA.

It is considered that no other SAC or SPA lies within the zone of influence of this project.

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. The NPWS assessment refers to the status of protected habitats and species that was carried out for the European Commission in 2013 (NPWS, 2013a & b). This gives the status of the feature at a national level and does not necessarily refer to the status of a habitat or feature within the River Barrow and River Nore SAC.

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 *Petromyzon marinus* (Code: 1095)	Habitats Directive Annex II	Bad
Brook Lamprey *Lampetra planeri* (Code: 1099)		Good
Aquatic snail *Vertigo moulinsiana* (Code: 1016)		Bad

River Lamprey *Lampetra fluviatilis* (Code: 1096)	Habitats Directive Annex II, V	Good
Freshwater Pearl Mussel *Margaritifera margaritifera* (Code: 1029)		Bad
Nore freshwater pearl mussel *Margaritifera margaritifera durrovensis* (Code: 1990)		Bad
Freshwater Crayfish *Austropotamobius pallipes* (Code: 1092)		Intermediate
Twaite Shad *Alosa fallax fallax* (Code: 1103)		Good
Atlantic Salmon *Salmo salar* (Code: 1106)		Intermediate
Otter *Lutra lutra* (Code: 1355)		Good
Killarney fern *Trichomanes speciosum* (Code: 1421)		Good

- 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 an 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 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 dependent 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 find 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.
- Desmoulin’s Whorl Snail is a tiny mollusc that is particularly sensitive to changes in water level. It occurs in swamps, fens and marshes. The greatest threats have been drainage of wetlands and riparian management of canals.
- 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).
- Twaite 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.
- Alkaline Fens: Threats of 'high importance' are groundwater abstractions, land reclamation, diffuse groundwater pollution, land abandonment/under-grazing. These fen systems are often a complex mosaic of habitats, with tall sedge beds, reedbeds, wet grasslands, springs and open-water often co-occurring at a given fen site. Their integrity is reliant upon a stable, high water table; calcareous/low-nutrient water supply; and controlled mowing and/or grazing.
- Transition Mires: Threats of 'high importance' are land reclamation, wrongly directed conservation measures, infilling and peat extraction. The habitat is characterised by a broad range of physically unstable peat-forming vegetation communities floating on surface water. Transition mires typically occur in the wettest parts of raised bog, blanket bog or fen or at transition areas of open water and may reflect the actual succession from fen to bog. Its continued integrity requires a permanently high water level;
- Desmoulin's Whorl Snail: a tiny mollusc that is particularly sensitive to changes in water level. Occurs in swamps, fens and marshes. The greatest threats have been drainage of wetlands and riparian management of canals.
- Marsh Fritillary: Good habitat is considered to be moderate to high coverage of *Succisa pratensis* (Devil's-bit Scabious, food plant for the caterpillars), low-growing unintensive sward with low levels of scrub. The species survives best

in an open landscape where movement is largely unimpeded and habitat patches are easily reached by the relatively sedentary adults.

River Nore SPA (site code: 4233)

The boundary of the River Nore SPA lies within the boundary of the larger SAC but in this case it closely follows the main channel of the River Nore and its immediate riparian zones from near Mouthrath in Co. Laois to south of Thomastown in Co. Kilkenny. It has a single 'feature of interest', the Kingfisher *Alcedo atthis* which is listed on Annex I of the Birds Directive. The conservation objective for this SPA is stated as "to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA" (NPWS, 2018). Favourable conservation status is defined as for habitats and species for SACs. At a national level the Kingfisher is considered to be of medium (amber listed) conservation concern (Colhoun & Cummins, 2013). The Nore system was surveyed as part of a national survey of Kingfisher and it was found that it supported 16-22 territories (Cummins et al., 2010).

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 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 are referred to later in this report as necessary.

For the SPA generic conservation objectives only have been published by the NPWS and these are given below (NPWS, 2018):

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.

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.

Water quality in rivers is monitored on an on-going basis by the Environmental Protection Agency (EPA). It assesses the pollution status of a stretch of water by analysing the invertebrates living in the substrate as different species show varying sensitivities to pollution. It arrives at a 'Q-Value' where Q1 = grossly polluted and Q5 = pristine quality (Toner et al., 2005). The Crokers Hill site is within the catchment of the Breagagh River, which drains a small portion of western County Kilkenny before joining the Nore. There is an EPA monitoring point at the bridge north-west of Aughtanny. Water quality was most recently measured here in 2016 when a value of Q3 (moderate pollution) was recorded. Downstream meanwhile there is a monitoring point at the Brewery Bridge and here Q3 conditions were also recorded in 2016. Overall the Breagagh River is assessed as 'poor' under the 2010-2015 Water Framework Directive reporting (WFD) period. The River Nore in Kilkenny meanwhile is assessed as 'good'. These data are taken from the mapping tool on www.epa.ie.

These assessments indicate 'unsatisfactory' conditions throughout the catchment of the Breagagh River and so remedial measures will be required to achieve 'good ecological status'.

The first River Basin Management Plan (RBMP) was published in 2010 and Stoneyford Stream fell within the Nore Main Water Management Unit (WMU). This showed that in 2010 only 30% of the catchment was attaining 'good' status at that time. It stated that nearly 50% of the total phosphorous source (a key nutrient leading to eutrophication) is from agriculture while a further 40% derives from wastewater treatment plants.

In 2018 a second RBMP was published which highlights 190 'priority areas for action' where resources are to be focussed over the 2018-2021 period. A number of tributaries of the Nore are among these areas, including the Breagagh, the Brownstown, the Dinin, the Owenveg and the Ballyroan.

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 King's River including Atlantic Salmon and Lampreys. No habitats listed in table 1 are to be found along the Breagagh River and this is outside the SAC/SPA boundary. There are no records of the Desmoulin's Whorl Snail or Freshwater Pearl Mussel along the Nore downstream of Kilkenny. Critically, the Nore Freshwater Pearl Mussel is not found in water downstream of this project. The main channel of the Nore does provide habitat however for the White-clawed Crayfish, all Lamprey species, Atlantic salmon and Otter. The Twaite shad is only found in estuarine

waters. Kingfisher is also likely to be present in this area. 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 Kilkenny is operated by Irish Water under licence from the EPA (reference: D0018-01). This has a capacity to treat effluent from a population equivalent (P.E.) of 77,000. Mean hydraulic loading is well within this limit. The Annual Environmental Report for 2017 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 water shows that "The discharge from the wastewater treatment plant does not have an observable negative impact on the water quality" and "has no observable negative impact on the Water Framework Directive status". The AER states that the treatment capacity of the plant is not likely to be exceeded within the next three years.

Step 4: 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 nearly 900m from the boundary of the River Barrow and River Nore SAC and the River Nore SPA. Because of the distance separating the site and this area there is no pathway for loss or disturbance of habitats listed in table 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 River Nore, via the Breagagh River. 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 the Breagagh but is being met along this section of the Nore. 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.

No negative effects to the SAC are likely to arise from changes to surface run-off quality or quantity during the operation phase due to the attenuation measures incorporated into the design.

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 the risk of pollution from this source is moderate as site at the land slopes directly towards the Breagagh River. Therefore negative effects to the SAC, and to Atlantic Salmon in particular, cannot be ruled out.

This aspect of the project is not likely to affect Kingfishers along the Nore (or Breagagh River should they be present).

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 complaint 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.

Flooding
A project-specific flood risk assessment has been carried out by IE Consulting. This states:

The proposed development site is …not at risk of fluvial flooding from the River Breagagh. A small area at the south-western corner of the proposed development site may potentially be impacted by fluvial flooding, however no development is proposed at this location. There are no significant or restrictive hydraulic structures located in the immediate vicinity of the proposed development site. In this regard no further assessment of primary potential fluvial flood risk to the proposed development site is required.

Overall the fluvial flood risk to the proposed development site is LOW. Development of the site is not expected to result in a significant adverse impact to the hydrological regime of the area or to increase flood risk elsewhere.

The report states in conclusion that, *overall, the flood risk to the proposed development site is LOW.*

Disturbance
The development is not likely to result in disturbance effects at Natura 2000 areas due to the nature and location of the development. There is a significant buffer zone remaining between the development and the Breagagh River so that disturbance effects, e.g. from noise or lighting, will not occur. This must be seen in the context of the already built-up nature of these surroundings.

Abstraction
There is no evidence that abstraction from the River Nore is negatively affecting conservation objectives in the River Barrow and River Nore SAC.
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 Nore catchment although these targets have not been met by the 2015 deadline. The Breagagh River is among the ‘priority areas for action’ where improvements to water status are expected by 2021.

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 is occurring in this vicinity and which will see open/agricultural land converted to built development. This can impact upon biodiversity though 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 development will add to the cumulative loading at the Kilkenny wastewater treatment plant. However there is sufficient capacity to treat this effluent to the required standard. No in combination effects are anticipated to arise from this source.

The subject lands have been zoned for residential development in the Kilkenny City and Environs Local Area Plan 2014-2020, and much of the land to the east is already composed of housing. Additional lands to the south of Kennyswell Road are also zoned for this purpose. This plan was screened for AA, a Natura Impact Statement was prepared and the planning authority carried out a full AA. This concluded that “having incorporated mitigation measures, it is considered that the Kilkenny City & Environs Development Plan will not have a significant adverse effect on Natura 2000 sites, and that the integrity of the Natura 2000 sites will not be adversely affected.”

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

List of agencies consulted

Third party observations were not sought due to the low ecological sensitivity of the subject lands.

Conclusions of Stage 1 Screening

No negative effects are predicted to occur to the River Nore SPA when measured against its conservation objectives.

Hydrological pathways exist to the River Nore; significant effects cannot be ruled out to the following area:

- River Barrow and River Nore SAC

The conservation objective set for Atlantic Salmon in this SAC is “no decline in the number of spawning beds (redds); water quality at least Q4 at all sites”. Given the potential effects to water quality during construction (particularly sediment pollution) significant effects to this qualifying interest cannot be ruled out. This may affect the integrity of the SAC.

It is therefore concluded that a full AA will be required. To assist in this decision, a separate Natura Impact Statement (NIS) has been submitted to the planning authority.

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