Appropriate Assessment Screening Report

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for the proposed

PROPOSED ENVIRONMENTAL AND PUBLIC REALM IMPROVEMENT WORKS TO KILCULLEN MARKET SQUARE AND MAIN STREET, KILCULLEN INCLUDING PART OF BENTLEY'S LANE (L-60741-0) AND PART OF THE PEDESTRIAN WALKWAY ALONG THE EASTERN BANKS OF THE RIVER LIFFEY

at

Kilcullen, Kildare

in accordance with the requirements of Article 6(3) of the EU Habitats Directive

for: **Kildare County Council**

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Devoy Park,

Naas,

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2. Introduction

2.1. Background

CAAS Ltd. has been appointed by Kildare County Council to examine planning and ecological considerations for the proposed environmental and public realm improvement works to Market Square, Main Street and part of Bentley's Lane (L-60741-0) along with other associated works to part of the pedestrian walkway along the eastern banks of the River Liffey - (the proposed development). This Appropriate Assessment (AA) Screening Report (also known as *Stage One* AA) has been prepared to assess whether or not a Natura Impact Statement (NIS) (also known as *Stage Two* AA) is required for the proposed development. AA is a procedure carried out in accordance with the requirements of Article 6(3) of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (hereafter referred to as the "Habitats Directive").

2.2. Report Structure

This report sets out the legislative context for the assessment process with reference to relevant guidelines and highlight the experience and qualifications of the author (See Appendix IV for author qualifications). It then details the proposed development and the works associated with this which are then interrogated to identify any possible effects which may be ecologically relevant for European sites. Following this, the metrics for the assessment of 'significance' of these effects are explained and applied to each of the European sites with ecological connectivity to the proposed development area. This assessment is undertaken in view of the conservation objectives and known sensitivities of the qualifying interests and special conservation interests for each European site. Other plans and projects are then considered to identify any likely in combination effects which may result in significant adverse effects to European sites.

2.3. Legislative Context

The Habitats Directive provides legal protection for habitats and species of European importance. The overall aim of the Habitats Directive is to maintain or restore the "favourable conservation status" of habitats and species of European Community Interest. These habitats and species are listed in the Habitats and Birds Directives (Habitats Directive as above and Directive 2009/147/EC on the conservation of wild birds) with Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated to afford protection to the most vulnerable among them. These two designations are collectively known and referred to as European sites. Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect such sites. Article 6(3) establishes the requirement for AA. These requirements are implemented in the Republic of Ireland by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) and the Planning and Development Act 2000 (as amended).

Article 6(3) of the Habitats Directive States:

> *'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of*

> *the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public'.*

The AA process relates to the protection of species listed in Annex I and Annex II of the Habitats Directive which form the Natura 2000 network (Article 3(1)). Species breeding and resting places of species listed in Annex IV of the Habitats Directive are nationally protected in Ireland as per Articles 15 and 16 of the Habitats Directive. The actual species listed in Annex IV do not form part of the Natura 2000 network as they are not mentioned in Article 3(1) of the Directive which defines the Natura 2000 network.

Article 3(1) of the Habitats Directive States:

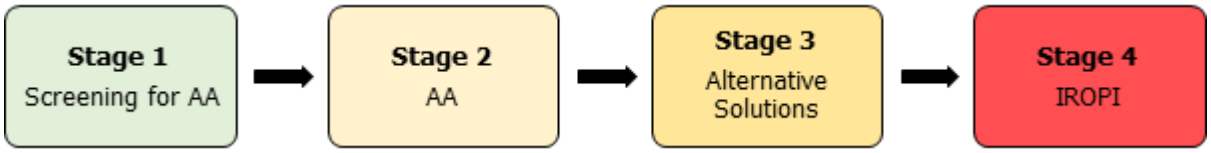
> *'A coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000. This network, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range'.*

AA is an assessment of the likely significant effects arising from a plan or project, either individually or in combination with other plans or projects, to assess if the plan or project will adversely affect any European site concerned including implications in view of the European site's conservation objectives. These sites consist of SACs and SPAs and provide for the protection and long-term survival of Europe's most valuable and threatened species and habitats. Where a formal consent process applies, the AA process is concluded by the relevant competent authority making a determination in accordance with article 6(3) of the Habitats Directive.

2.4. Overview of the Habitats Directive and Appropriate Assessment Process

The Habitats Directive itself promotes a hierarchy of avoidance, mitigation and compensatory measures. This approach aims to avoid any effects on European sites by identifying possible effects early in the plan or project making process and avoiding such effects. Second, the approach involves the application of mitigation measures, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If potential significant effects on European sites remain, and no further practicable mitigation is possible, the approach requires the consideration of alternative solutions. If no alternative solutions are identified and the plan or project is required for imperative reasons of overriding public interest, then compensation measures are required for any remaining adverse effects.

There are four main stages in the AA process:



Stage One: Screening
The process that identifies the likely impacts upon a European site of a project or plan, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant.

Stage Two: Appropriate Assessment
The consideration of the impact on the integrity of the European site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse effects mitigation measures are required to avoid or minimise potential effects. The details of these mitigation measures are then assessed in the context of the ecological integrity of the plan/project characteristics to ensure no significant adverse effects on European sites. If this assessment process shows there are no residual significant effects, then the process may end at this stage, stage two, of the AA process which are formalised in Natura Impact Statements (NIS) reports which support the overall AA process. However, if the likelihood of significant impacts remains, then the process must proceed to Stage Three.

Stage Three: Assessment of Alternative Solutions
The process that examines alternative ways of achieving the objectives of the project or plan that avoids adverse impacts on the integrity of the European site.

Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain
An assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

2.5. Approach

This AA screening is based on best scientific knowledge and has utilised ecological expertise. In addition, a detailed online review of published scientific literature and 'grey' literature was conducted. This included a detailed review of the National Parks and Wildlife Website including mapping and available reports for relevant sites and in particular sensitive qualifying interests/special conservation interests described and their conservation objectives. The EPA Envision map viewer (www.epa.ie) and available reports were also reviewed, as was the NPWS (2019) publication "The Status of Protected EU Habitats and Species in Ireland".

The ecological desktop study that has been completed for the AA screening of the proposed project, comprised the following elements:

- Identification of European sites within 15km[1] of the subject lands;
- Identification of European sites within 15km of the site with identification of potential

[1] While the actual zone of impact is likely to be much smaller, the default 15km zone extent has been applied on a precautionary basis

pathways to specific sites (if relevant[2]) greater than 15km from the subject lands;
- Review of the NPWS site synopses and conservation objectives for European sites within 15km and for which potential pathways from the proposed site have been identified; and
- Examination of available information on protected species.

Source-Pathway Receptor Model

Ecological impact assessment of potential effects on European sites is conducted following a standard source-pathway-receptor model, where, in order for an effect to be established, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance.

- Source(s) – e.g., pollutant run-off from proposed development;
- Pathway(s) – e.g., groundwater connecting to nearby qualifying wetland habitats; and,
- Receptor(s) – qualifying aquatic habitats and species of European sites.

In the context of this report, a receptor is an ecological feature that is known to be utilised by the qualifying interests or special conservation interests of a European site. A source is any identifiable element of the proposed development that is known to interact with ecological processes. A pathway is any connection or link between the source and the receptor[3].

This report provides information on whether direct, indirect and cumulative adverse effects could arise from the proposed development.

Guidance

The AA screening has been prepared taking into account legislation including the aforementioned legislation and guidance including the following:

- *Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government, 2009;*
- *Commission Notice: Managing Natura 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC", European Commission 2018;*
- *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", European Commission Environment DG, 2002;*
- *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC", European Commission, 2000; and*
- *Practice Note PN01: Appropriate Assessment Screening for Development Management, Office of the Planning Regulator, 2021.*

[2] This is particularly relevant for all sites with hydrological connectivity

[3] qualifying interest or special conservation interests of the European site in question and the known sensitivities of these key ecological receptors

3. Description of proposed development

3.1. Receiving Environment Overview

Kilcullen is a busy and diverse town in Kildare with a range of commercial and community facilities with residential areas surrounding the town and neighbouring towns. The area within the proposed development is predominantly made up of building and artificial surfaces with bare ground in the area being colonised by disturbance tolerant plants species. In addition, the River Liffey flows through the town with a rich riparian habitat along the river.

3.2. Overview of the proposed development

The proposed development is comprised of works to Kilcullen Market Square, Main Street and part of Bentley's Lane (L-60741-0) as well as part of the pedestrian walkway along the eastern banks of the River Liffey. The aim of this proposed plan is to establish a framework for the physical, socio-economic, cultural and recreational development of Kilcullen in a planned, co-ordinated and sustainable manner in order to conserve and enhance the established tradition and intrinsic character of the town.

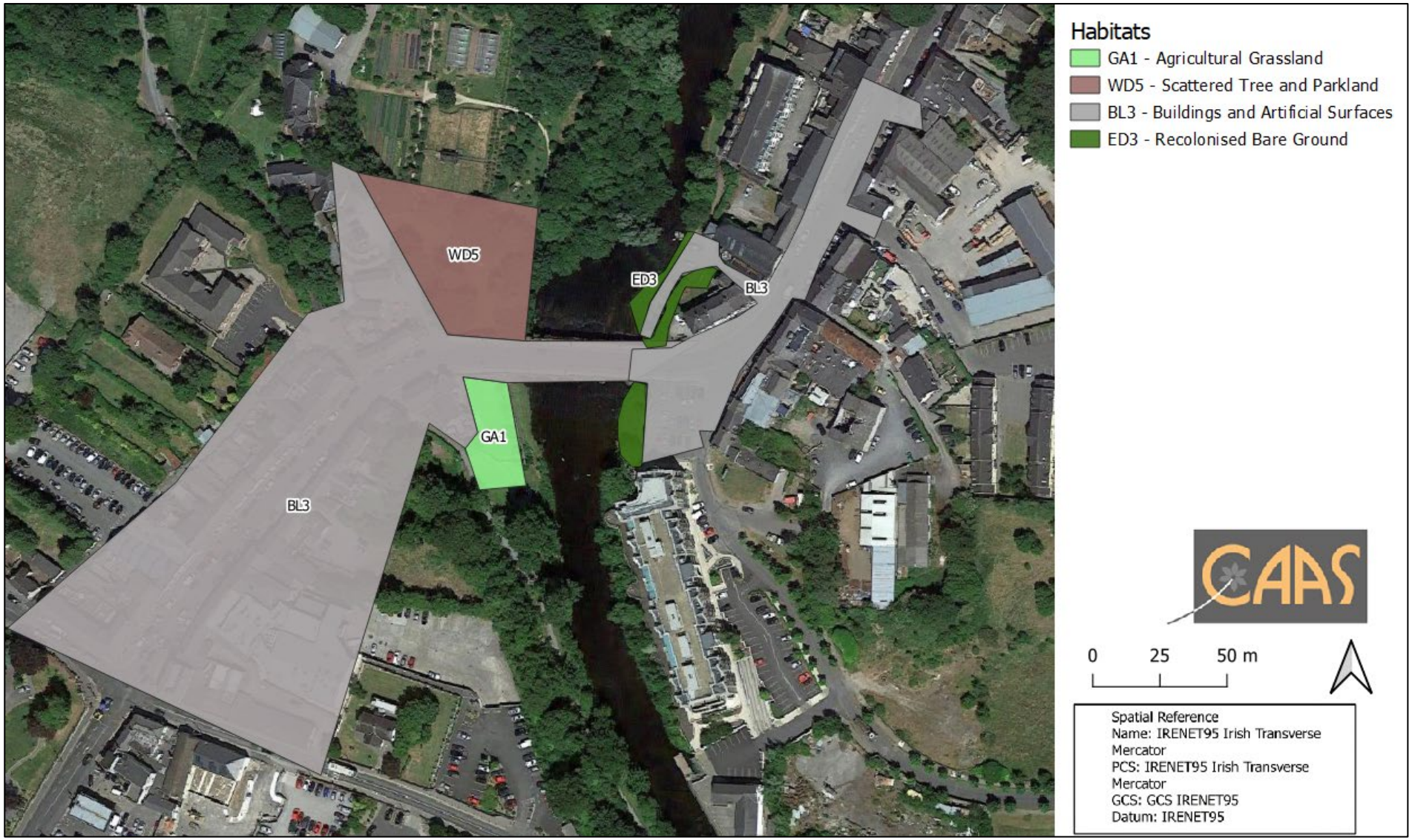
3.3. Details of Proposal

As noted, the proposed development comprises of environmental and public realm improvement works to Kilcullen Market Square, Main Street and part of Bentley's Lane (L-60741-0) as well as part of the pedestrian walkway along the eastern banks of the River Liffey. In a wider landscape context, the M9 Motorway acts as a natural barrier to expansion of the town itself with the already mentioned River Liffey flowing south east to north west of the town and eventually through to Dublin Bay, with closest European site being Pollardstown Fen SAC (000396) at 7.52km away from the proposed site in a north-westerly direction. Beyond the boundaries of the town lies Dun Ailnne to the south, Brannockstown to the east, Athgarvan and the Curragh to the west with Naas to the north. The proposed development site in Kilcullen is surrounded by habitats of low ecological value and is in a relatively highly urbanised area (Figure 2.1).

The proposed alterations to Kilcullen Market Square, Main Street and other associated works aim to broaden to appeal of Kilcullen and the wider area in order to grow and develop the area. The Kilcullen Local Area Plan sets out an overall strategy for the proper planning and sustainable development of Kilcullen in the context of the Kildare County Development Plan 2017-2023 and Regional Planning Guidelines for the greater Dublin Area 2010-2022.

The works proposed plan to combine the following elements:

1. Create a flexible space to accommodate outdoor events and community events;
2. Encourage business growth and development;
3. Enhance the setting of protected structures; and,
4. Minimise clutter, including the undergrown of overhead cables.


WD5
ED3
BL3
GA1
BL3
Habitats
GA1 - Agricultural Grassland
WD5 - Scattered Tree and Parkland
BL3 - Buildings and Artificial Surfaces
ED3 - Recolonised Bare Ground
CAAS
0 25 50 m
Spatial Reference
Name: IRENET95 Irish Transverse Mercator
PCS: IRENET95 Irish Transverse Mercator
GCS: GCS IRENET95
Datum: IRENET95

4. Screening for Appropriate Assessment

4.1. Introduction

This stage of the process identifies any likely significant effects on European sites from the project, either alone or in combination with other projects or plans. A series of questions are asked in order to determine:

- Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of a European site.
- Whether the project will have a potentially significant effect on a European site, either alone or in combination with other projects or plans, in view of the site's conservation objectives or if residual uncertainty exists regarding potential impacts.

An important element of the AA process is the identification of the "'Conservation Objectives", "Qualifying Interests" (QIs) and/ or "Special Conservation Interests" (SCIs) of European sites requiring assessment. QIs are the habitat features and species listed in Annexes I and II of the Habitats Directive for which each European site has been designated and afforded protection. SCIs are wetland habitats and bird species listed within Annexes I and II of the Birds Directive. It is also vital that the threats to the ecological / environmental conditions that are required to support QIs and SCIs are considered as part of the assessment.

Site-Specific Conservation Objectives (SSCOs) have been designed to define favourable conservation status for a particular habitat or species at that site. According to the European Commission interpretation document 'Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC', paragraph 4.6(3):

> *"The integrity of a site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives."*

Favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, are stable or increasing;
- 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.

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;
- 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.

4.2. Identification of relevant European sites

This section of the screening process describes the European sites which exist within the Zone of Influence (ZOI) of the site. An assessment of the sources of effects (see Section 3.3 below) identified

that effects from the proposed development are likely to be localised – in the absence of hydrological pathways. The Environment, Heritage and Local Government (2009) Guidance on AA recommends a 15km zone to be considered.

There are two key considerations when identifying ecological pathways - the first is the distance from which potential sources for effects can radiate and the second is the potential for sensitive receptors (QIs/SCIs) to interact with the zone of influence. It is understood that sites designated for vagile species are known to utilise isolated resources across the landscape could intersect with the localised zone of influence; however, beyond 15km potential effects to such species at this scale are not identified to be significant due to the broad home range available to these species and the availability of alternate resources. Therefore, on a precautionary basis the radius of 2km has been adopted for this AA - however, further considerations were given to hydrological pathways from the proposed development.

European sites identified to have ecological connectivity pathways for potential effects from the proposed development are listed in Table 3.1 and illustrated in Figure 3.1 below. Details on the specific QIs and SCIs of each European site are also identified in the Appendix, as well as site-specific threats and vulnerabilities of each of the sites.

In order to determine the potential effects of the proposal, information on the qualifying features, known vulnerabilities and threats to site integrity pertaining to any potentially affected European sites has been reviewed. Background information on threats to individual sites and vulnerability of habitats and species that was used during this assessment included the following:

- Ireland's Article 17 Report to the European Commission *"Status of EU Protected Habitats and Species in Ireland"* (NPWS, 2019);
- Ireland's Article 12 Report to the European Commission *"Bird species' status and trends reporting format for the period 2008-2012-"* (NPWS, 2012)
- Site Synopses[4]; and
- NATURA 2000 Standard Data Forms[5].

The assessment considers the SSCOs of each of the sites within the ZOI. Since the conservation objectives for the European sites focus on maintaining the favourable conservation condition of the QIs/SCIs of each site, the screening process has concentrated on assessing the potential effects of the proposed development against the QIs/SCIs of each site. The conservation objectives for each site have been taken into account throughout the assessment process.

[4] NPWS (2019); NPWS Database of protected site data and associated documents for each European site; available at https://www.npws.ie/protected-sites: last accessed 30th November 2021

[5] NPWS (2019); NPWS Database of protected site data and associated documents for each European site; available at https://www.npws.ie/protected-sites: last accessed 30th November 2021

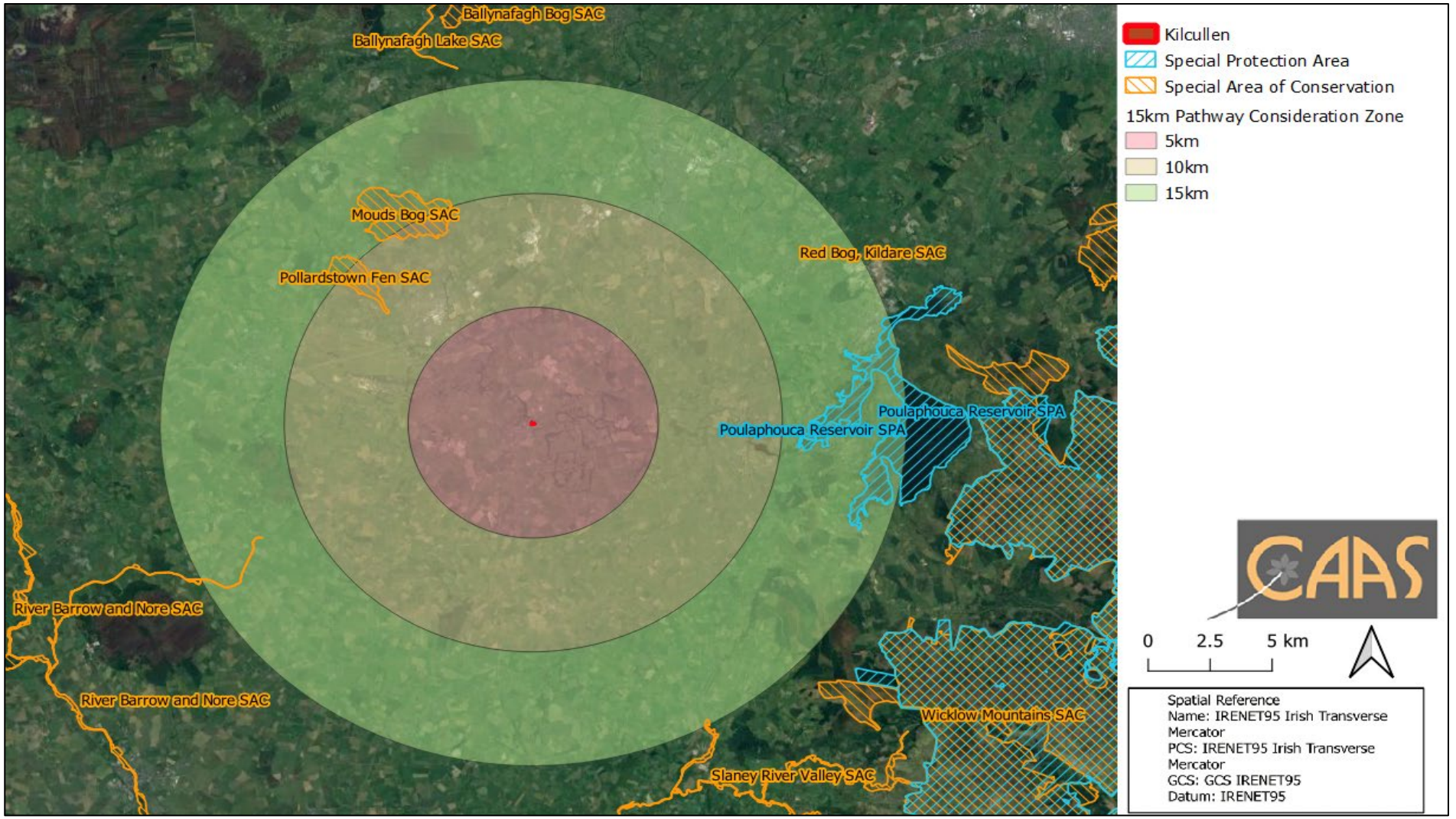


Figure 3.1 European sites within 15km of the proposed development boundary[6]

[6] Source: NPWS (datasets downloaded 30th November 2021)

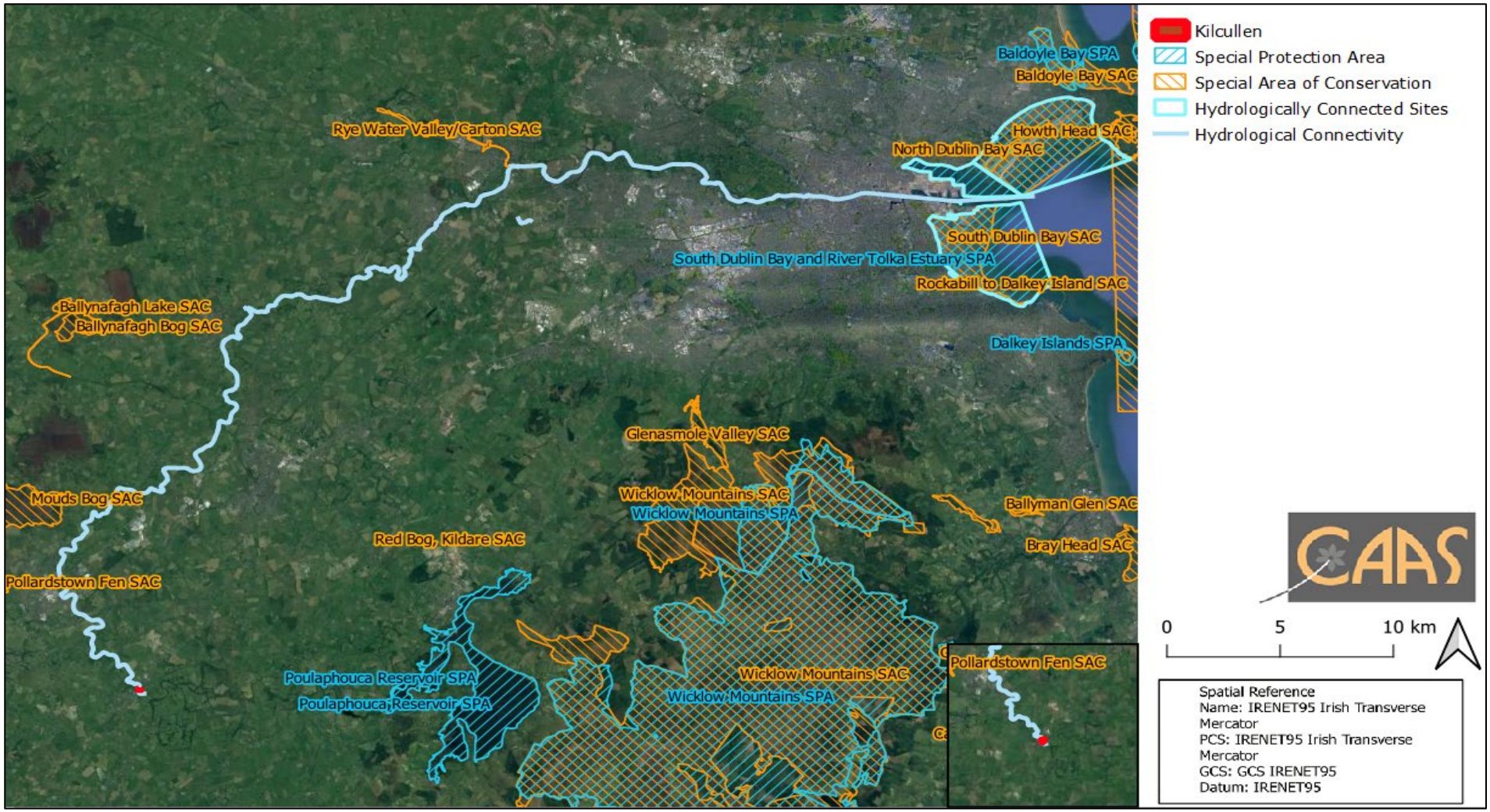


Figure 3.1 Hydrological connectivity to European sites beyond 15km of the proposed development boundary[7]

[7] Source: NPWS Protected Sites and EPA River Routes (datasets downloaded 30th November 2021)

4.3. Assessment criteria

4.3.1. Is the development necessary to the management of European sites?

Under the Habitats Directive, projects that are directly connected with or necessary to the management of a European site do not require AA. For this exception to apply, management is required to be interpreted narrowly as nature conservation management in the sense of Article 6(1) of the Habitats Directive. This refers to specific measures to address the ecological requirements of annexed habitats and species (and their habitats) present on a site(s). The relationship should be shown to be direct and not a by-product of the project, even if this might result in positive or beneficial effects for a site(s).

The primary purpose of the proposed development is not the nature conservation management of the sites, but to improve the streetscape of Kilcullen Market Square. Therefore, the proposed development would not be considered by the Habitats Directive to be directly connected with or necessary to the management of European designated sites.

4.3.2. Elements of the proposed development with potential to give rise to effects

This screening assessment process identifies whether the changes brought about by the proposal are likely to cause any direct, indirect or secondary effects (either alone or in combination with other plans or projects) on the European sites. During this assessment a number of factors have been taken into account including the sites' conservation objectives and known threats. The overall aim of the assessment is to predict the consequences that can be reasonably foreseen by implementation of the proposed development.

For the purposes of this assessment the proposed development is identified to have potential to have only construction phase effects (in relation to Europeans sites). The operational phase of the of the proposed development will be consistent with the current operational phase of the area and is consistent with the existing land use; therefore, the proposed development is not foreseen to interact with European sites. The construction phase elements of the project also introduce potential sources for effects to ecological processes such as:

- Disturbance effects through noise;
- Earthworks (removal of vegetation etc.);
- Dust; and
- Surface water run-off.

The Construction phase will be small-scale and temporary. The construction phase effects identified are considered in the context of European sites identified above, their sensitivities and conservation objectives.

4.3.3. Identification of potential effects and screening of sites

This section documents the final stage of the screening process. It has used the information collected on the sensitivity of each European site and describes any potential effects on European sites resulting from the proposed development. This assumes the absence of any controls, conditions, or mitigation measures. In determining the potential for effects, a number of factors have been taken into account. Firstly, the sensitivity and reported threats to European sites.

Secondly, the individual elements of the proposed development and the potential effects they may cause on the sites were considered. The elements of the proposed development with potential to affect European sites are presented in Table 3.1.

Sites are screened out based on one or a combination of the following criteria:

- where it can be shown that there are no significant pathways such as hydrological links between activities of the proposed development and a site;
- where a site is located at such a distance from proposed development area that effects are not foreseen; and
- where known threats or vulnerabilities of a site cannot be linked to potential impacts that may arise from the proposed development.

4.4. Characterising potential significant effects

This section of the report explains the metrics used when assessing if the potential effects (previously identified) will have significant implications for European sites. The following parameters are described when characterising impacts (following guidance from the Chartered Institute of Ecology and Environmental Management, Environmental Protection Agency and National Roads Authority):

- **Direct and Indirect Impacts** - An impact can be caused either as a direct or as an indirect consequence of a Plan/Project.
- **Magnitude** - Magnitude measures the size of an impact, which is described as high, medium, low, very low or negligible.
- **Extent** - The area over that the impact occurs – this should be predicted in a quantified manner.
- **Duration** - The time that the effect is expected to last prior to recovery or replacement of the resource or feature.
  - Temporary: Up to 1 Year;
  - Short Term: The effects would take 1-7 years to be mitigated;
  - Medium Term: The effects would take 7-15 years to be mitigated;
  - Long Term: The effects would take 15-60 years to be mitigated; and
  - Permanent: The effects would take 60OR years to be mitigated.
- **Likelihood** – The probability of the effect occurring taking into account all available information.
  - Certain/Near Certain: >95% chance of occurring as predicted;
  - Probable: 50-95% chance as occurring as predicted;
  - Unlikely: 5-50% chance as occurring as predicted; and
  - Extremely Unlikely: <5% chance as occurring as predicted.

The Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for ecological impact assessment (2016) define: an ecologically significant impact as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographic area; and the integrity of a site as the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.

The Habitats Directive requires the focus of the assessment at this stage to be on the integrity of the site as indicated by its Conservation Objectives. It is an aim of NPWS to draw up conservation management plans for all areas designated for nature conservation. These plans will, among other things, set clear objectives for the conservation of the features of interest within a site.

SSCOs have been prepared for a number of European sites. These detailed SSCOs aim to define favourable conservation condition for the qualifying habitats and species at that site by setting targets for appropriate attributes which define the character habitat. The maintenance of the favourable condition for these habitats and species at the site level will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

> **Favourable conservation status** of a **species** can be described as being achieved when: '*population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or 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.*'
>
> **Favourable conservation status** of a **habitat** can be described as being achieved when: '*its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that 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*'.

A Generic Conservation Objective for a SAC is provided below:

- To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.

A Generic Conservation Objective for a SPA is provided below:

- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

4.4.1. Types of potential Effects

EC guidance[8] outlines the types of effects that may affect European sites. These include effects from the following activities:

- Land take
- Resource requirements (drinking water abstraction etc.)
- Emissions (disposal to land, water or air)
- Excavation requirements (removal of soil and vegetation)
- Transportation requirements
- Duration of construction, operation, decommissioning

[8] 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, European Commission Environment DG, 2001

The 2001 European Commission AA guidance outlines the following potential changes that may occur at a designated site, which may result in effects on the integrity and function of that site:

- Reduction of habitat area
- Disturbance to key species
- Habitat or species fragmentation
- Reduction in species density
- Changes in key indicators of conservation value (water quality etc.)
- Climate change

The elements detailed above were considered with specific reference to each of the European sites identified in Table 3.1 but are also considered in a broader sense below.

Loss/reduction of habitat area

There are no European sites present within the redline boundary and the closest European site is 7.52 km away. Similarly, there were no Annex I habitats or supporting habitat for Annex II species identified on site. Therefore, there will be no effects posed to European sites in this respect.

Habitat or species fragmentation

The proposed site is a highly urbanised area, being part of Kilcullen town itself. Thusly, the proposed development area and its surrounding area has a very low ecological value. Any alterations will, be in line with the current habitat and surrounding habitats. The area has been considered at a landscape scale with respect to connectivity and ecological corridoes between European site; there are no functional pathways that will be interrupted by the proposed development. However, there is a direct surface hydrological connection to Dublin Bay. However, the proposed development works will not interact with the River Liffey itself. Similarly, there were no Annex I habitats or supporting habitat for Annex II species identified on site. Therefore, there will be no effects posed to European sites in this respect.

Disturbance to key species

None of the species and/or habitats identified in Table 3.1 were recorded on site. The nearest European site is 7.52 km away from the proposed site and therefore disturbance effects due to noise or lighting etc. are not present. Given the urban setting of the area – as well as the temporary small-scale nature of the development – there are no significant effects related to ex-situe foraging identified. Therefore, there are no effects related to disturbance effects to European sites.

Reduction in species density

There are no ecological corridors between the site and any European site. Similarly, there are no habitats identified on site of any ecological significance. As there is no supporting habitat and/or connectivity between the proposed development and any European site, there will be no reduction in species density of any of the QI or SCI species.

Changes of indicators of conservation value

The site is 7.52 km from the closest European site, the proposed development is Given the nature of the proposed work, the scale and the localised and temporary nature of the potential effects with negligible effects identified. As mentioned before, there is a direct hydrological link between the

proposed development site and European sites. The River Liffey flows through the town of Kilcullen, which is connected to a number of European sites through Dublin Bay approximately 80.5km from the proposed site. However, given this significant distance along with the nature, scale and temporary nature of the proposed works, it was determined that there are no likely significant effects to sites in Dublin Bay. The works relate to the to improve the streetscape of Kilcullen Market Square and there are there are no ecological pathways for effects beyond construction related dust and noise effects; however, the construction phase is temporary and small in scale between European sites and the proposed development. Therefore, there are no sources for effects with pathways that will affect any conservation indicators related to European sites.

Climate change

The proposed works will not result in any greenhouse gas emissions to air during the operational phase. The construction phase works will have increased temporary emissions which will be localised however, given the distance to the nearest European site these are determined to be negligible. Such effects upon greenhouse gas emissions will not affect changes projected to arise from climate change to the degree that it would affect the QIs or SCIs of the European sites considered.

Table 3.1 Screening assessment of the potential effects arising from the proposed development

Site Code	Site Name	Distance	Qualifying Feature	Potential Effects	Pathway for Significant Effects	Potential for In-Combination Effects
000396	Pollardstown Fen SAC	7.52	Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210], Geyer`s whorl snail *(Vertigo geyeri)* [1013], Petrifying springs with tufa formation *(Cratoneurion)* [7220], Alkaline fens [7230], Narrow-mouthed whorl snail *(Vertigo angustior)* [1014], Desmoulin`s whorl snail *(Vertigo moulinsiana)* [1016]	The SAC is sensitive to groundwater interactions and direct land use management activities. There are no sources for effect to ground water or land use management of the SAC or the surrounding area. There are no hydrological pathways between the proposed project and the SAC. Given the distance between the proposed project and the SAC, the small-scale temporary nature of the project and the absence of direct pathways there are no effects identified to the ecological integrity of the SAC.	No	No
002331	Mouds Bog SAC	8.93	Degraded raised bogs still capable of natural regeneration [7120], Depressions on peat substrates of the Rhynchosporion [7150], Active raised bogs [7110]	The SAC is sensitive to groundwater interactions and direct land use management activities. There are no sources for effect to ground water or land use management of the SAC or the surrounding area. There are no hydrological pathways between the proposed project and the SAC. Given the distance between the proposed project and the SAC, the small-scale temporary nature of the project and the absence of direct pathways there are no effects identified to the ecological integrity of the SAC.	No	No
004063	Poulaphouca Reservoir SPA	10.63	Greylag Goose *(Anser anser)* [A043], Lesser Black-backed Gull *(Larus fuscus)* [A183]	The SPA is sensitive to disturbance effects, hydrological interactions, and direct land use management activities. There are no sources for effect to land use management of the SPA or the surrounding area. There are no hydrological pathways between the proposed project and the SPA. Disturbance effects are known to be negligible beyond 1.5km and this SPA is 9.82 km from the proposed site. Given the distance between the proposed project and the SPA, the small-scale temporary nature of the project and the absence of direct pathways	No	No

				there are no effects identified to the ecological integrity of the SPA.		
002162	River Barrow and River Nore SAC	11.94	Nore Pearl Mussel *(Margaritifera durrovensis)* [1990], White-clawed crayfish *(Austropotamobius pallipes)* [1092], Mudflats and sandflats not covered by seawater at low tide [1140], Mediterranean salt meadows *(Juncetalia maritimi)* [1410], Sea lamprey *(Petromyzon marinus)* [1095], Brook lamprey *(Lampetra planeri)* [1096], Otter *(Lutra lutra)* [1355], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Freshwater pearl mussel *(Margaritifera margaritifera)* [1029], Reefs [1170], Estuaries [1130], Atlantic salmon *(Salmo salar)* [1106], Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)* [1330], Salicornia and other annuals colonising mud and sand [1310], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], European dry heaths [4030], Desmoulin`s whorl snail *(Vertigo moulinsiana)* [1016], Petrifying springs with tufa formation *(Cratoneurion)* [7220], Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430], Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0], River lamprey *(Lampetra fluviatilis)* [1099], Twaite shad *(Alosa fallax)* [1103], Killarney fern *(Trichomanes speciosum)* [1421]	The SAC is sensitive to hydrological interactions, groundwater interactions and direct land use management activities. There are no sources for effect to ground water or land use management of the SAC or the surrounding area. There are no hydrological pathways between the proposed project and the SAC. Given the distance between the proposed project and the SAC, the small-scale temporary nature of the project and the absence of direct pathways there are no effects identified to the ecological integrity of the SAC.	No	No
000781	Slaney River Valley SAC	14.73	Harbour seal *(Phoca vitulina)* [1365], Mediterranean salt meadows *(Juncetalia maritimi)* [1410], Estuaries [1130], Otter *(Lutra lutra)* [1355], Twaite shad *(Alosa fallax)* [1103], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], Freshwater pearl mussel *(Margaritifera margaritifera)* [1029], Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)* [1330], Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0], Mudflats and sandflats not covered by seawater at low tide [1140], Sea lamprey *(Petromyzon marinus)* [1095], Brook lamprey *(Lampetra planeri)* [1096], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], River lamprey *(Lampetra fluviatilis)* [1099], Atlantic salmon *(Salmo salar)* [1106]	The SAC is sensitive to hydrological interactions, groundwater interactions and direct land use management activities. There are no sources for effect to ground water or land use management of the SAC or the surrounding area. There are no hydrological pathways between the proposed project and the SAC. Given the distance between the proposed project and the SAC, the small-scale temporary nature of the project and the absence of direct pathways there are no effects identified to the ecological integrity of the SAC.	No	No

4.5. Other plans and projects

Article 6(3) of the Habitats Directive requires an assessment of a plan or project to consider other plans or projects that might, in combination with the plan or project, have the potential to adversely affect European sites.

As part of this assessment a search of the Kildare County Council planning database was undertaken to identify relevant plans and programmes which relate to the proposed development. Similarly, all developments from the receiving area were considered; this was achieved through a search of the national planning database using a distance parameter around the red line boundary to search. The radius is defined by the authoring ecologist using criteria which depend on the characteristics of the proposed development and the associated sources (identified above); these criteria include:

- Having direct or indirect connectivity to a European site;
- Being in close proximity to a European site;
- Being of a substantial scale relative to the conditions and/or current works taking place in the surrounding landscape;
- Having disperse emissions or far-reaching sources for effects;
- Having sources for effects to ecological connectivity.

These factors are considered in the context of characteristics of the proposed development and a distance buffer of 200m was used to search for projects within the receiving environment. The sources for effects from the proposed development are considered in combination with the potential sources for effects from the receiving environment for potential additive or interactive effects to the receiving environment.

Plans of relevance within the receiving environment or in-combination with effects arising from the proposed development:

- Kildare County Development Plan 2017 - 2023
- Regional Planning Guidelines for the greater Dublin Area 2010-2022

Considering that the proposed development has a small-scale temporary construction phase and the operational phase is consistent with the existing land use, it is not foreseen that proposed development will have any significant in-combination effects with the above plans.

Projects within the receiving environment assessed for in-combination with effects arising from the proposed development:

To identify projects for consideration for the in-combination effects section, the National Planning and Housing development database was used[9]. A review of all planning applications within the identified zone was conducted focusing on all application within the past 5 years[10].

This being a relatively urban town, there are numerous other proposed projects in the vicinity including works which are at planning stage or underway on various sites. The database search

[9] https://data-housinggovie.opendata.arcgis.com/datasets/planning-application-sites-2010-onwards; 30th November 2021

[10] planning application have a standard lifespan of 5 years as per Section 40 (3)(b) of the Planning & Development Act 2000, as amended; therefore, these are viewed to be the 'live' applications, all other projects are considered as part of the site context

found that the majority of projects within the area are relating to the altering of existing structures, small private home extensions, extension of permissions, and minor developments which fall under the Kildare County Development Plan housing targets (see Table 3.2 for complete list).

All construction and infrastructure work in the local area are small in scale and best practice construction measures will also be implemented for each. Due to the scale and nature of the proposed works there are no significant adverse effects identified as a result of the implementation of the proposed development. On this basis, assessment guidance (CIEEM, 2018) indicates that there is no need to consider cumulative effects. However, taking a precautionary approach, relevant plans and projects have nonetheless been reviewed and assessed (Table 3.2).

These developments will increase cumulative impacts of the proposed development project but only during the construction phase, and, given the overall long-term negligible impacts of the proposed development, the overall cumulative impacts for local biodiversity as a result of the proposed development are also negligible.

Table 3.2 Local planning applications within the receiving environment of the proposed development

Project Code	Status	Overview	Project Area (sq m)	Characteristics of the potential interactions between the projects; sources and pathways	Is there a risk of in-combination effects	Are significant in-combination effects likely
16869	Conditional	Demolition of derelict structure, erection of 16 no. two and three storey houses comprising of 8 no. terraced houses, 6 no. semi-detached houses and 2 no. detached houses accessed from New Abbey Road, and ancillary services and site works. Revised by Significant Further Information which consists of new access to church car park through the development, revised house types and street elevations and revised boundary treatment at new church entrance	14,798	This is a project with a temporary construction phase and is a relatively small project in scale and thus the effects from the project will be localised and be in keeping with the urban environment. The proposed streetscaping works are small scale with temporary constructions phase. There are no significant in combination effects identified.	No	No
151094	Conditional	New storey-and-a-half dwelling house, alterations to existing entrance, septic tank and all associated site works	8,026	This is a project with a temporary construction phase and is a relatively small project in scale and thus the effects from the project will be localised and be in keeping with the urban environment. The proposed streetscaping works are small scale with temporary constructions phase. There are no significant in combination effects identified.	No	No
19612	Conditional	The building of a small single storey extension to side of existing dormer type dwelling and for all associated siteworks	2,741	This is a project with a temporary construction phase and is a relatively small project in scale and thus the effects from the project will be localised and be in keeping with the urban environment. The proposed streetscaping works are small scale with temporary constructions phase. There are no significant in combination effects identified.	No	No
21312	Conditional	Alterations to the previously granted permission reference 20/917, that proposed a 16.64 sq.m minor extension to the east elevation of the single storey building to the rear of No. 10. The proposed development seeks a 35.1 sq.m extension to the west elevation of the same building, Note: the net increase of proposed area is 18.46 sq.m. Planning permission is also sought for an associated development at The Emerald Building, this includes: the demolition of an existing single storey extension and galvanized sheds, a change of use from office to residential of the ground and first floor areas (a gross area of 193.8sq.m), along with the provision of 5 No. car parking spaces, the provision of private open space and all ancillary works	2,604	This is a project with a temporary construction phase and is a relatively small project in scale and thus the effects from the project will be localised and be in keeping with the urban environment. The proposed streetscaping works are small scale with temporary constructions phase. There are no significant in combination effects identified.	No	No

Project Code	Status	Overview	Project Area (sq m)	Characteristics of the potential interactions between the projects; sources and pathways	Is there a risk of in-combination effects	Are significant in-combination effects likely
20917	Conditional	Single Storey extension to the rear of the 2-storey main building (linking to existing single storey detached structure at rear) and a separate, single storey extension of the detached single storey building at the rear (combined area of 67.3 sq.m). Change of use of first floor area (93.5 sq.m) from residential to office use. The development for which planning permission is sought will consist of: Change of use of vacant ground floor area (92.94 sq.m; former residential and guesthouse use) to residential, along with internal and external alterations. Change of use of single-story structure to the rear (including single story extensions to be retained) to residential use, along with associated internal and external alterations. Provision of minor single storey rear extension (13. 87sq.m), Provision of 5 no. car park spaces and 2 no. cycle spaces. All associated site works including private open space	1,733	This is a project with a temporary construction phase and is a relatively small project in scale and thus the effects from the project will be localised and be in keeping with the urban environment. The proposed streetscaping works are small scale with temporary constructions phase. There are no significant in combination effects identified.	No	No
16869	Conditional	Demolition of derelict structure, erection of 16 no. two and three storey houses comprising of 8 no. terraced houses, 6 no. semi-detached houses and 2 no. detached houses accessed from New Abbey Road, and ancillary services and site works. Revised by Significant Further Information which consists of new access to church car park through the development, revised house types and street elevations and revised boundary treatment at new church entrance	14,798	This is a project with a temporary construction phase and is a relatively small project in scale and thus the effects from the project will be localised and be in keeping with the urban environment. The proposed streetscaping works are small scale with temporary constructions phase. There are no significant in combination effects identified.	No	No
151094	Conditional	New storey-and-a-half dwelling house, alterations to existing entrance, septic tank and all associated site works	8,026	This is a project with a temporary construction phase and is a relatively small project in scale and thus the effects from the project will be localised and be in keeping with the urban environment. The proposed streetscaping works are small scale with temporary constructions phase. There are no significant in combination effects identified.	No	No

5. Conclusion

This stage one screening for AA of the proposed improvement works at Kilcullen Market Square, Main Street and part of Bentley's Lane and pedestrian walkway along the eastern banks of the River Liffey demonstrates that the proposed development is not likely to have significant effects on any European site.

The AA screening process has considered potential effects which may arise during the construction and operational phases as a result of the implementation of the project. Through an assessment of the pathways for effects and an evaluation of the project characteristics, taking account of the processes involved and the distance of separation from European sites, it has been evaluated that there are no likely significant adverse effects on the qualifying interests, special conservation interest or the conservation objectives of any designated European site.

The proposed development is 7.52 km away from the closest SAC and 10.63 km away from the closest SPA. Given the nature of the proposed work, the scale and the localised and temporary nature of the potential effects, the proposed project will not lead to any significant effects in-combination with effects arising from any other plans or projects.

It is concluded that the proposed development is not foreseen to give rise to any significant adverse effects on any designated European sites, alone or in combination with other plans or projects. This evaluation is made in view of the conservation objectives of the habitats or species for which these sites have been designated. Consequently, a Stage Two AA (NIS) is not required.

Appendix I Background information on European sites

European sites with functional connectivity (ecological pathways) to the proposed development area including their Qualifying Interests, known threats and pressures

Site Code	Site Name	Qualifying Feature	Pressures Codes	Known Threats and Pressures
000396	Pollardstown Fen SAC	Petrifying springs with tufa formation *(Cratoneurion)* [7220], Desmoulin`s whorl snail *(Vertigo moulinsiana)* [1016], Alkaline fens [7230], Narrow-mouthed whorl snail *(Vertigo angustior)* [1014], Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210], Geyer`s whorl snail *(Vertigo geyeri)* [1013]	A04, C01.01, E03.01, J01, E01.03, F03.01, D02.01, F02.03, B	Grazing, Sand and gravel extraction, Disposal of household or recreational facility waste, Fire and fire suppression, Dispersed habitation, Hunting, Electricity and phone lines, Leisure fishing, Sylviculture, forestry
000781	Slaney River Valley SAC	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0], Sea lamprey *(Petromyzon marinus)* [1095], Otter *(Lutra lutra)* [1355], River lamprey *(Lampetra fluviatilis)* [1099], Mediterranean salt meadows *(Juncetalia maritimi)* [1410], Brook lamprey *(Lampetra planeri)* [1096], Atlantic salmon *(Salmo salar)* [1106], Estuaries [1130], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], Twaite shad *(Alosa fallax)* [1103], Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)* [1330], Freshwater pearl mussel *(Margaritifera margaritifera)* [1029], Harbour seal *(Phoca vitulina)* [1365], Mudflats and sandflats not covered by seawater at low tide [1140]	A01, H01, D01.05, J02, H01.08, A08, A09, D01.01, E05, B02, F01.03, A10.01, H01.05, J02.12.02, D03.01.03, C01.01, I01, J02.06, F02.03.01, F03.02.04, H01.01, J02.05.02, J02.06.01, E03, J02.11, K01.01	Cultivation, Pollution to surface waters (limnic & terrestrial, marine & brackish), Bridge, viaduct, Human induced changes in hydraulic conditions, Diffuse pollution to surface waters due to household sewage and waste waters, Fertilisation, Irrigation, Paths, tracks, cycling tracks, Storage of materials, Forest and Plantation management & use, Bottom culture, Removal of hedges and copses or scrub, Diffuse pollution to surface waters due to agricultural and forestry activities, Dykes and flooding defense in inland water systems, Fishing harbours, Sand and gravel extraction , Invasive non-native species, Water abstractions from surface waters, Bait digging or collection, Predator control, Pollution to surface waters by industrial plants, Modifying structures of inland water courses, Surface water abstractions for agriculture, Discharges, Siltation rate changes, dumping, depositing of dredged deposits, Erosion
002162	River Barrow and River Nore SAC	Killarney fern *(Trichomanes speciosum)* [1421], Brook lamprey *(Lampetra planeri)* [1096], Nore Pearl Mussel *(Margaritifera durrovensis)* [1990], Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)* [1330], Otter *(Lutra lutra)* [1355], Petrifying springs with tufa formation *(Cratoneurion)* [7220], Freshwater pearl mussel *(Margaritifera margaritifera)* [1029], Estuaries [1130], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Reefs [1170], River lamprey *(Lampetra fluviatilis)* [1099], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], White-clawed crayfish *(Austropotamobius pallipes)* [1092], Mediterranean salt meadows *(Juncetalia maritimi)*	F01.01, B07, B02.01.01, A04.01.01, A10.01, F02.03, B05, A02.01, J02, J03.02.01, F02, F02.01.02, I01, D03.01, H01, J02.12.02, C01.01.01, C01.03, K01.01, M01, J02.02.01, B02, J02.06, J02.05.02,	Intensive fish farming, intensification , Forestry activities not referred to above, Forest replanting (native trees), Intensive cattle grazing, Removal of hedges and copses or scrub, Leisure fishing, Use of fertilizers (forestry), Agricultural intensification, Human induced changes in hydraulic conditions, Reduction in migration or migration barriers, Fishing and harvesting aquatic resources, Netting, Invasive non-native species, Port areas, Pollution to surface waters (limnic & terrestrial, marine & brackish), Dykes and flooding defense in inland water systems, Sand and gravel quarries, Peat extraction, Erosion, Changes in abiotic conditions, Dredging or removal of limnic sediments, Forest and Plantation management & use, Water abstractions from surface waters, Modifying structures of inland water courses, Industrial or commercial areas

		[1410], Atlantic salmon *(Salmo salar)* [1106], European dry heaths [4030], Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0], Desmoulin`s whorl snail *(Vertigo moulinsiana)* [1016], Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430], Salicornia and other annuals colonising mud and sand [1310], Sea lamprey *(Petromyzon marinus)* [1095], Mudflats and sandflats not covered by seawater at low tide [1140], Twaite shad *(Alosa fallax)* [1103]	E02	
002331	Mouds Bog SAC	Degraded raised bogs still capable of natural regeneration [7120], Active raised bogs [7110], Depressions on peat substrates of the Rhynchosporion [7150]	A01, A04, E02, B, J01, C01.03.02, I01	Cultivation, Grazing, Industrial or commercial areas, Sylviculture, forestry, Fire and fire suppression, Mechanical removal of peat, Invasive non-native species
004063	Poulaphouca Reservoir SPA	Lesser Black-backed Gull *(Larus fuscus)* [A183], Greylag Goose *(Anser anser)* [A043]	B01, D01.05, F02.03, F03.01, G01.01	Forest planting on open ground, Bridge, viaduct, Leisure fishing, Hunting, Nautical sports

Appendix II Further information on the Qualifying Interests of SACs that have undergone assessment

Qualifying Interests of SACs that have undergone assessment including summaries of current threats and sensitivities

Qualifying Interests	EU Code	Current threats to Qualifying Interests	Sensitivity of Qualifying Interests
Geyer's Whorl Snail *(Vertigo geyeri)*	[1013]	Loss of riverside and canalside habitat; exploitation of esker sites and drainage of wetlands, and sheep grazing and overexploitation of dune sites.	Changes to ground vegetation condition, groundwater dependent and is highly sensitive to hydrological changes.
Narrow-mouthed Whorl Snail *(Vertigo angustior)*	[1014]	Loss of riverside and canalside habitat; exploitation of esker sites and drainage of wetlands, and sheep grazing and overexploitation of dune sites.	Changes to ground vegetation condition, groundwater dependent and is highly sensitive to hydrological changes.
Desmoulin's Whorl Snail *(Vertigo moulinsiana)*	[1016]	Loss of riverside and canalside habitat; exploitation of esker sites and drainage of wetlands, and sheep grazing and overexploitation of dune sites.	Changes to ground vegetation condition, groundwater dependent and is highly sensitive to hydrological changes.
Freshwater Pearl Mussel *(Margaritifera margaritifera)*	[1029]	In stream works, hydrological and morphological alterations, sediment and enrichment, pollution due urbanisation etc. Poor substrate quality due to increased growth of algal and macrophyte vegetation as a result of severe nutrient enrichment, as well as physical siltation.	Surface water dependent. Highly sensitive to hydrological change. Very highly sensitive to pollution.
White-clawed Crayfish *(Austropotamobius pallipes)*	[1092]	Poor substrate quality due to increased growth of algal and macrophyte vegetation as a result of severe nutrient enrichment, as well as physical siltation.	Invasive species, disease, surface water dependent. Highly sensitive to hydrological change. Very highly sensitive to pollution.
Sea Lamprey *(Petromyzon marinus)*	[1095]	Barriers to upstream migration (e.g. weirs), which limit access to spawning beds and juvenile habitat are main threats to this species.	Marine water dependent. Low sensitivity to hydrological changes. Coastal development, trampling from recreational activity.
Brook Lamprey *(Lampetra planeri)*	[1096]	Channel maintenance, barriers, passage obstruction, gross pollution and specific pollutants.	Surface water dependent Highly sensitive to hydrological change.
River Lamprey *(Lampetra fluviatilis)*	[1099]	Channel maintenance, barriers, passage obstruction, gross pollution and specific pollutants.	Surface water dependent Highly sensitive to hydrological change.
Twaite Shad *(Alosa fallax fallax)*	[1103]	Habitat quality, particularly at spawning sites is the most notable threat to this species.	Changes in management. Changes in nutrient or base status. Moderately sensitive to hydrological change.
Salmon *(Salmo salar)*	[1106]	Marine survival rates are of concern for the populations.	Disease, parasites and barriers to movement.
Estuaries	[1130]	Pollution, fishing /aquaculture and habitat quality.	Inappropriate development, changes in turbidity
Mudflats and sandflats not covered by seawater at low tide	[1140]	Aquaculture, fishing, bait digging, removal of fauna, reclamation of land, coastal protection works and invasive species, particularly cord-grass; hard coastal defence structures; sea-level rise.	Surface and marine water dependent. Moderately sensitive to hydrological change. Moderate sensitivity to pollution. Changes to salinity and tidal regime. Coastal development.
Reefs	[1170]	Professional fishing; taking for fauna; taking for flora; water pollution; climate change; and change in species composition.	Sensitive to disturbance and pollution.

Qualifying Interests	EU Code	Current threats to Qualifying Interests	Sensitivity of Qualifying Interests
Salicornia and other annuals colonising mud and sand	[1310]	Invasive Species; erosion and accretion.	Marine water dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Infilling, reclamation, invasive species.
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	[1330]	Overgrazing; erosion; invasive species, particularly common cordgrass (Spartina anglica); infilling and reclamation.	Marine and groundwater dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Overgrazing, erosion and accretion.
Otter *(Lutra lutra)*	[1355]	Decrease in water quality: Use of pesticides; fertilization; vegetation removal; professional fishing (including lobster pots and fyke nets); hunting; poisoning; sand and gravel extraction; mechanical removal of peat; urbanised areas; human habitation; continuous urbanization; drainage; management of aquatic and bank vegetation for drainage purposes; and canalization or modifying structures of inland water course.	Surface and marine water dependent. Moderately sensitive to hydrological change. Sensitivity to pollution.
Harbour Seal *(Phoca vitulina)*	[1365]		
Mediterranean salt meadows *(Juncetalia maritimi)*	[1410]	Over-grazing by cattle or sheep; infilling and reclamation.	Marine and groundwater dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Coastal development and reclamation.
Killarney Fern *(Trichomanes speciosum)*	[1421]	Threatened by habitat loss, deliberate collection, encroachment of invasive or vigorous species, or indirectly by water pollution, removal of woodland or alteration of watercourses.	Land use management and direct impacts.
River Nore Freshwater Pearl Mussel *(Margaritifera durrovensis)*	[1990]	In stream works, hydrological and morphological alterations, sediment and enrichment, pollution due urbanisation etc. Poor substrate quality due to increased growth of algal and macrophyte vegetation as a result of severe nutrient enrichment, as well as physical siltation.	Surface water dependent. Highly sensitive to hydrological change. Very highly sensitive to pollution.
Water courses of plain to montane levels with vegetation*(Ranunculion fluitantis and Callitricho-Batrachion)*	[3260]	Hydrological and morphological changes, water quality, enrichment, and surface water discharges from industrial site and/or agriculture.	Surface water dependent Highly sensitive to hydrological change and direct physical interactions.
European dry heaths	[4030]	Afforestation, overburning, over-grazing, under-grazing and bracken invasion.	Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status.
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	[6430]	Agricultural intensification; drainage; abandonment of pastoral systems.	Surface and groundwater dependent. Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status.
Active raised bogs	[7110]	Drainage; burning; peat extraction; overgrazing; afforestation; erosion; and climate change.	Surface and groundwater dependent. Low sensitivity to hydrological changes. Erosion, land-use changes.
Degraded raised bogs still capable of natural regeneration	[7120]	Drainage; burning; peat extraction; overgrazing; afforestation; erosion; and climate change.	Surface and groundwater dependent. Low sensitivity to hydrological changes. Erosion, land-use changes.
Depressions on peat substrates of the Rhynchosporion	[7150]	Drainage; burning; peat extraction; overgrazing; afforestation; erosion; and climate change.	Surface and groundwater dependent. Low sensitivity to hydrological changes. Erosion, land-use changes.

Qualifying Interests	EU Code	Current threats to Qualifying Interests	Sensitivity of Qualifying Interests
Calcareous fens with species of mariscus sedge and bog cotton *(Cladium mariscus and Caricion davallianae)*	[7210]	Hydrological changes, pollution to surface waters, urbanisation, roads development, groundwater interactions, grazing and cultivation practices and the inappropriate use of pesticides.	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.
Petrifying springs with tufa formation *(Cratoneurion)*	[7220]	Ground water interactions, on site management activities.	Surface and groundwater dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution.
Alkaline fens	[7230]	Land reclamation, peat extraction; afforestation; erosion and landslides triggered by human activity; drainage; burning and infrastructural development.	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.
Old sessile oak woods with Ilex and Blechnum in the British Isles	[91A0]	The introduction of alien species; sub-optimal grazing patterns; general forestry management; increases in urbanisation and human habitation adjacent to oak woodlands; and the construction of communication networks through the woodland.	Changes in management. Changes in nutrient or base status. Introduction of alien species.

Appendix III Further information on the Special Conservation Interests of SPAs that have undergone assessment

Special Conservation Interests and Vulnerabilities of SPAs that have undergone assessment

Special Conservation Interest (SCI) Species
Greylag goose *(Anser anser)* [A043]
Greylag goose *(Anser anser [Iceland/UK/Ireland])* [A043]
Lesser black-backed gull *(Larus fuscus)* [A183]

Vulnerabilities of Special Conservation Interests

- Bird species are particularly vulnerable to direct disturbance due to noise and/or vibration. These effects are localised, and disturbance effects are foreseen to be low at distances beyond 2km[11].
- Direct habitat loss is a serious concern for bird species, as well as the reduction in habitat quality. Habitat degradation could occur through effects such as local enrichment due to agricultural practices or damage to habitat through activities such as trampling.
- Prey species diversity and availability is a key element of species conservation. Community dynamics and ecosystem functionality are complex concepts and require site specific information. The site synopsis and conservation objectives for the SPAs identified within the ZOI were used to identify any specific prey sensitivities.
- Availability of nesting/roosting habitat. Particularly for the Hen Harrier.
- Vegetation composition, structure and functionality.

Wetland and Waterbirds [A999] Direct land take is a common vulnerability to all sites; as well as significant water quality effects. The conservation objective of all SPAs designated for Wetland and Waterbirds is to maintain the favourable conservation condition of the wetland habitat as a resource for the regularly occurring migratory waterbirds using it.

[11] SNH (2007) A Review of Disturbance Distances in Selected Bird Species: Scottish Natural Heritage; M. Ruddock & D.P. Whitfield

Appendix IV Author Details

Lead Author - Callum O'Regan is a graduate ecologist who holds a B.Sc. degree in Zoology from University College Cork and obtained a Master's degree in Conservation Behaviour from Galway-Mayo Institute of Technology in 2021. Callum has skills in data management and analysis, report writing and mapping. Callum has worked on a number of reports including Ecological Impact Assessments (EcIAs) on Rathcool Aerodrome and on the Platform for Growth in both Ballycuggaran and Kilkee.

Supervisor - Andrew Torsney is a Principal Ecologist with 9 years' experience working on major national and local scale projects. Andrew graduated from University College Dublin in 2011 with a B.Sc. degree in Zoology and obtained Master's degree in Biodiversity and Conservation from the University of Leeds in 2012. He has a range of ecological skills which include habitat mapping, ecological surveying, data interpretation and report writing. Andrew is a vegetative plant specialist, who has a wealth of experience classifying riparian habitats and identifying rare floral species. Andrew has a vast knowledge of riparian and freshwater ecosystems and undertakes freshwater surveys regularly. Andrew holds 4 national protected species licenses and has a lot of experience optioning surveying licenses for aquatic species such as the white clawed crayfish. He is also a Bat specialist with a wealth of experience, in acoustic surveying and monitoring of bats. Throughout Andrews's career he has worked on a number of large-scale multifaceted projects such as the Killaloe to Dublin water supply project NIS. For this work, Andrew designed and oversaw all ecological field work relating to the Environmental Impact Assessment (EIA) and AA.

Andrew has been the principal ecologist for a range of projects including the AA of the National Wind Energy Guidelines, a number of AAs for County Councils and a range of large-scale infrastructure projects.