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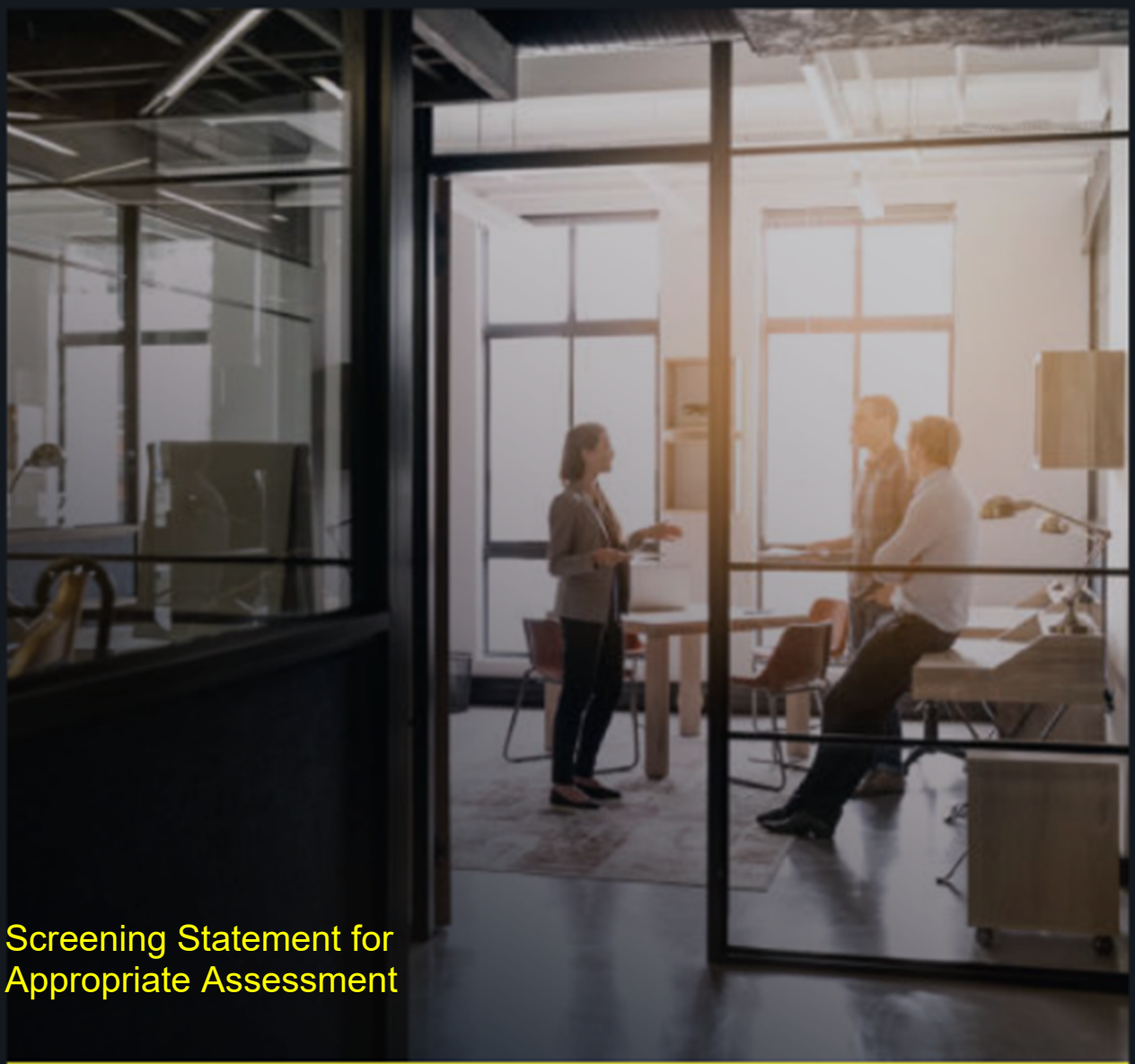
A creative ecosystem where business, people and ideas can flourish



Screening Statement for Appropriate Assessment

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Document Control Sheet

Project Name:	Grange Castle West Masterplan
Project Number:	17_129A
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1 Introduction

Doherty Environmental Consultants (DEC) Ltd. have been commissioned South Dublin County Council to undertake a Screening Report in support of an Appropriate Assessment (AA), under Article 6 of the EU Habitats Directive, in respect of the Grange Castle West Masterplan, Grange Castle West, Co. Dublin (see Figure 1.1 for location).

This Screening Report for Appropriate Assessment forms Stage 1 of the Habitats Directive Assessment process and is being undertaken in order to comply with the requirements of the Habitats Directive Article 6(3). The function of this Screening Report is to identify the potential for the project to result in likely significant effects to European Sites and to provide information so that the competent authority can determine whether a Stage 2 Appropriate Assessment is required for the Masterplan.

1.1 Statement of Authority

This Appropriate Assessment Screening Report has been prepared by Mr. Pat Doherty BSc., MSc, MCIEEM, of DEC Ltd. Mr. Doherty is a consultant ecologist with over 20 years' experience in completing ecological impact assessments and environmental impact assessments. Pat has been involved in the completion of assessment reports for proposed developments and land use activities under the EIA Directive and Article 6 of the Habitats Directive since 2003 and 2006 respectively. He has extensive experience completing such reporting for projects located in a variety of environments and has a thorough understanding of the biodiversity issues that may arise from proposed land use activities. Pat was responsible for completing one of the first Appropriate Assessment reports for large scale infrastructure developments in Ireland when he prepared the Appropriate Assessment for the N25 New Ross Bypass in 2006/07. Since then, Pat has completed multiple examinations of both plans and projects in Ireland. He has completed Natura Impact Statements for national scale plans such as Ireland's CAP Strategic Plan and National Seafood Development Plan and regional and county scale plans including County Development Plans, Local Area Plans, Tourism Strategies and Climate Action Plans. Pat has completed multiple Natura Impact Statements for a range of development types that include large scale infrastructure developments in sectors such as transport and energy as well as industrial, commercial and residential developments.

Pat has completed focused certified professional development training in Appropriate Assessment as well as in a range of ecological survey techniques and assessment processes. Training has been completed for National Vegetation Classification (NVC) and Irish Vegetation Classification (IVC) surveying, bryophyte survey for habitat assessment and identification, professional bat survey and assessment training, mammal surveying and specific training for bird and bat survey techniques. Ongoing training has been completed by approved training providers such as CIEEM, British Trust for Ornithology, the Botanic Gardens and the Field Studies Council.

1.2 Legislative Context

This Screening Report for Appropriate Assessment is being prepared in order to enable the competent authority to comply with Article 6(3) of Council Directive 92/43/EEC (The Habitats Directive). It is prepared to assess whether or not the project alone or in combination with other plans and projects is likely to have a significant effect on any European Site in view of best scientific knowledge and in view of the conservation

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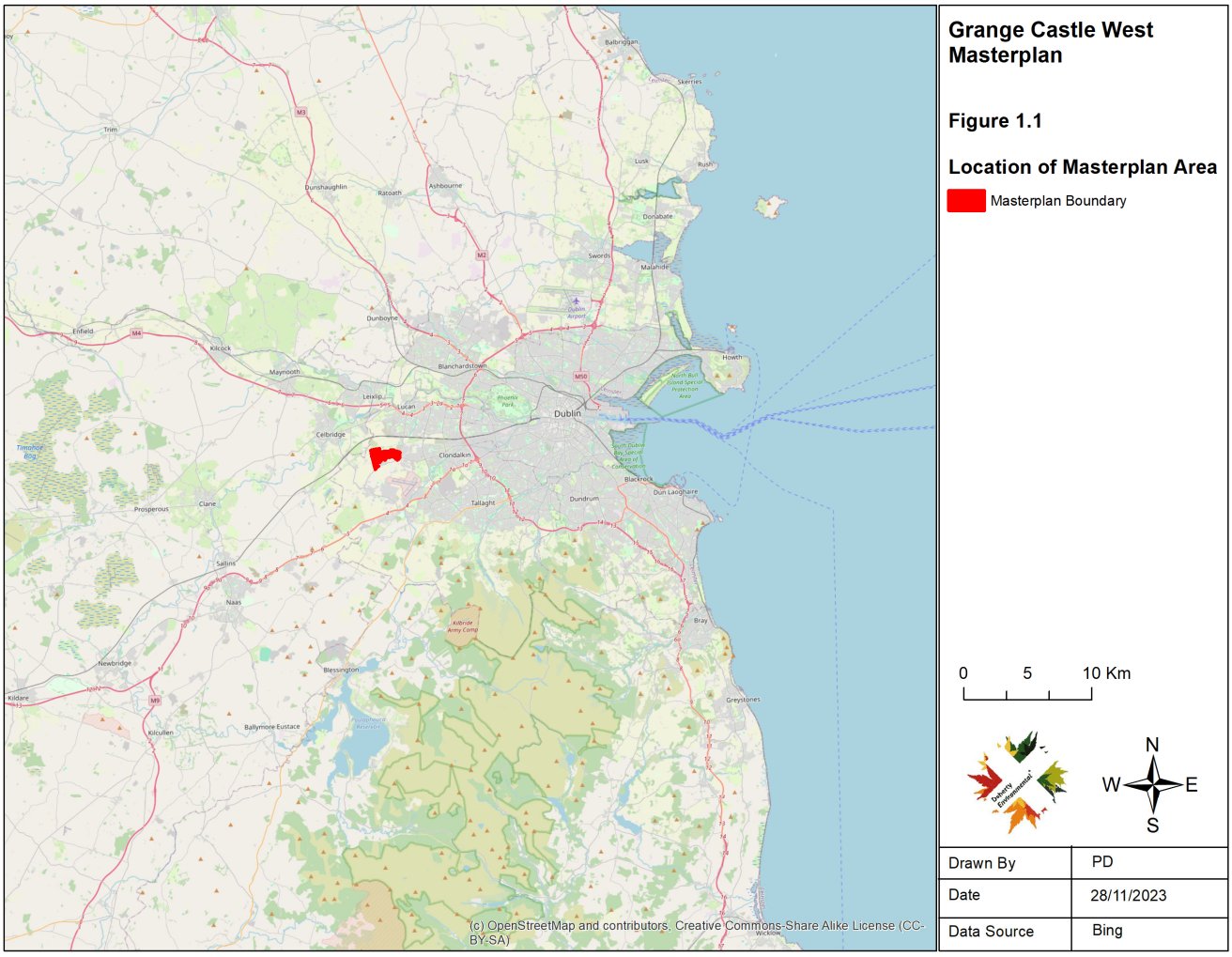
objectives of the European Sites and specifically on the habitats and species for which the sites have been designated.
the sites have been designated.

1.2.1 Requirement for an Assessment under Article 6 of the Habitats Directive

According to Regulation 42(1) of the European Communities (Birds and Natural Habitats) Regulations, as amended, the competent Authority has a duty to:

Determine whether the proposed Project is directly connected to or necessary for the management of one of more European Sites; and, if not,

Determine if the Project, either individually or in combination with other plans or projects, would be likely to have a significant effect on the



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- Eurpoean Site(s) in view of best scientific knowledge and the Conservation Objectives of the site(s)

This Report contains a Screening for Appropriate Assessment and is intended to assess and address all issues regarding the construction and operation of the Project and to inform and allow the competent authority to comply with the Habitats Directive. Article 6(3) of the Habitats Directive defines the requirements for assessment of projects and plans for which likely significant effects on European Sites may arise. The European Communities (Birds and Natural Habitats) Regulations, 2011 – 2015 (the Habitats Regulations) transpose into Irish law Directive 2009/147/EC (the Birds Directive) and Council Directive 92/43/EEC (the Habitats Directive) lists habitats and species that are of international importance for conservation and require protection. The Habitats legislation requires competent authorities, to carry out a Screening for Appropriate Assessment of plans and projects that, alone or in combination with other plans or projects, would be likely to have significant effects on European Sites in view of best scientific knowledge and the Site's conservation objectives. This requirement is transposed into Irish Law by Part 5 of the Habitats Regulations and Part XAB of the Planning and Development Act, 2000 (as amended).

1.3 Screening methodology

This Screening Report has been prepared in order to comply with the legislative requirements outlined in Section 1.1 above and aims to establish whether or not the proposed project, alone or in combination with other plans or projects, would be likely to have significant effects on European Sites in view of best scientific knowledge and the Site's conservation objectives. In this context "likely" means a risk or possibility of effects occurring that **cannot** be ruled out based on objective information and "significant" means an effect that would undermine the conservation objectives of the European sites, either alone or in-combination with other plans and projects (Office of the Planning Regulator (OPR), 2021).
The nature of the likely interactions between the Plan and the Conservation Objectives of European Sites will depend upon the:

- the ecological characteristics of the species or habitat, including their structure, function, conservation status and sensitivity to change; *and/or*

- the character, magnitude, duration, consequences and probability of the impacts arising from land use activities associated with the plan, in combination with other plans and projects.

This Screening Report for Appropriate Assessment has been undertaken with reference to respective National and European guidance documents: Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities (DEHLG 2010) and *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC; Office of the Planning Regulator – OPR Practice Note PN01: Appropriate Assessment Screening for Development Management,* and recent European and National case law.

The following guidance documents were also of relevance during the preparation of this Screening Report:

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- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats Directive 92/42/EEC. European Commission (2001).

- Managing Natura 2000 Sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC. European commission (2018).

The EC (2021) guidelines outline the stages involved in undertaking a Screening Report for Appropriate Assessment for projects. The methodology adopted during the preparation of this Screening Report is informed by these guidelines and was undertaken in the following stages:

1. Describe the project and determine whether it is necessary for the conservation management of European Sites;

2. Identify European Sites that could be influenced by the project;

3. Where European Sites are identified as occurring within the zone of influence of the project identify potential effects arising from the project and screen the potential for such effects to negatively affect European Sites identified under Point 2 above; and

4. Identify other plans or projects that, in combination with the project, have the potential to affect European Sites

1.4 Scientific Investigations

A range of scientific site investigations have been completed for the lands occurring within and adjacent to the Masterplan Area. These are relied upon in this Screening Report. The primary investigations include ecological desk-based investigations and field surveys.
Desk-based investigations were completed to identify pathways connecting the proposed development to European Sites. Datasets used to assist with the desk-based investigations include:

- NPWS European Sites and site-specific conservation objectives datasets;

- EPA Rivers and Lakes dataset;

- EPA surface water catchment and sub-catchment datasets;

- NPWS Article 17 Habitats and Species datasets;

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- OSI Geohive and OSI Historic townlands online mapping portal; and
- National Biodiversity Data Centre (NBDC) online mapping portal for records of all rare, threatened or protected occurring within and surrounding the Masterplan Area.
- Review of Screening Report for Appropriate Assessment for the South Dublin County Council County Development Plan 2016 – 2022 Variation No. 1
- Review of the Screening Report for Appropriate Assessment for the consented Grange Castle West Access Road.
- Review of baseline ecological data from other planning applications in the surrounding area. These comprise data from the EdgeConneX Ireland Ltd. Data Centre application (Marston Planning Consultants, 2019) and summary baseline ornithological information provided to South Dublin County Council for potential planning application within the Masterplan Area.

The ecological field surveys that have been completed include:

- Habitats and vegetation surveys and mapping within the Masterplan Area during September 2017; November 2017; May 2018; June 2018; November 2022; September 2023.
- Ornithological surveys which included non-breeding season and breeding season surveys based on walked transect surveys completed between 2017and 2023. Ornithological surveys were completed on the following dates: 27th September 2017*; November 2017; 5th & 6th February 2020; 25th March 2020; 28th September 2020*; 17th November 2021; 10th January 2022; 21th March 2022; 13th April 2021*; 30th November 2022; 18th January 2022 and 19th September 2023*[1]. These surveys comprised walkover transect surveys through the Grange Castle West lands with all fields being accessed during the surveys.

[1] * denotes times that overlap with the golden plover migration period.

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- Bat surveys comprising continuous bat monitoring within the Masterplan Area during the spring and summer of 2018 between 24th May and 17th June 2018. Further continuous monitoring was completed between 21st and 27th August inclusive. Manual transect surveys and roost surveys were completed within the Masterplan Area on the 24th May, 17th July and 21st August 2018.

- Non-volant mammals surveys for the presence of protected species such as badgers, otters and other smaller mammals such as shrew, squirrel, hedgehog etc. Particular attention was given to surveying the Tobermaclugg Stream for field signs indicating the presence of otters.

2 Masterplan Description

2.1 Masterplan Concept

2.1.1 Design Concept

The goal of the Masterplan is to build upon the existing access, services and landscaping strategies to create a sustainable and vibrant extension to the business park at Grange Castle. This development will attract new economic development opportunities to the area, while enhancing the climate resilience of the existing environment and providing a healthy and attractive place to work for a growing local population. The strategy for this will be based on the 'anchor plus' model where development is stimulated by large 'anchor' tenants and smaller businesses and start-ups are supported to encourage collaboration and growth. The framework to achieve this will make efficient and sustainable use of available land, provide versatile and flexible development plots, promote active & sustainable modes of transport, and create a pleasant and recognisable place for the people that work and visit here.

2.1.2 Overall Concept

Business parks are traditionally characterised as pleasantly landscaped yet isolated places on the periphery of urban centres. They often consist of large single-use compounds on buffered land parcels with limited interaction between businesses. Their workforces are heavily reliant on single occupancy vehicles for transportation and large areas are given over to parking as a result.
Recent times have seen the emergence of a new business park typology that seeks to create a more integrated and well-connected business ecosystem. This type of park encourages collaboration between companies by providing spaces and opportunities for them to interact and trade with one another. Development of small and medium-sized enterprises (SMEs) and start-up companies is supported. Interaction with existing local businesses and communities is encouraged. The vision for Grange Castle West is to draw on this concept to create a collaborative business community that is well integrated with the surrounding local area.

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2.2 Masterplan Proposal

2.2.1 GCW Business Park

The Grange Castle West site represents an opportunity to expand on the capacity of the existing business park to provide employment for a growing population and drive regional and national growth and investment. Both the physical infrastructure and the management of the park are vital in creating an environment that fosters a sense of community and collaboration among businesses, workers, and visitors.

2.2.2 Access and Movement

The existing road and associated paths, service way-leaves, and landscaping will be extended through the site. The road follows a route that maximizes the size of development plots to one side to optimize the flexibility to sub-divide sites. It terminates at the Peamount Road creating a second vehicular entrance to the park. This efficient road network maximises land utilization for business and amenity functions. Paths and trails for walking, running and biking provide important avenues to get out of the office and recharge.

2.2.3 Landscaping

The landscape strategy retains or re-orientates the key hedgerows and introduces new areas of planting and tree coverage around the perimeter and in the more awkward corners of the site. Wildlife underpasses are provided where hedgerows are broken by the main site road. Tree and planting coverage will be increased by filling in awkward corners of the site with dense and diverse pocket forests.
Landscaped areas will buffer paths and buildings from vehicular traffic creating safe and pleasant routes for people. This will encourage active movement and exposure to vegetation and water features, boosting health and well-being.

2.2.4 Built Environment

The Masterplan envisions an urban edge created by building frontage along the main spine road and amenity areas to promote interaction between individual sites and the public realm. Buildings address the public realm to provide activation and supervision. Building entrances are accessible from public paths and cars are kept out of the spaces between path and building. Vehicular access is provided by secondary roads located between sites and parking is located within sites, behind the urban edge created by the public-facing buildings. Where it has not been possible to provide frontage, this edge is broken by landscaped spaces and retained hedgerows that aid the strategies to increase biodiversity and exposure to blue and green infrastructure. The intention is to create a more vibrant and people-friendly park.

2.2.5 Masterplan Feature

The landscaping strategy will enhance the climate resilience of the site by integrating and enhancing the natural ecology of the lands. Natural habitats and routes for wildlife will be preserved by the creation of eco-corridors through the site. Pedestrian and cyclist routes will feed through the park and connect with the surrounding infrastructure. This strategy will create an attractive, permeable and universally accessible network of routes. Walking, cycling and the use of public transport will be encouraged through this increased permeability.

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2.2.6 Masterplan Feature

A ‘Mobility Hub’ is envisioned close to the main entrance of the park. This will encourage sustainable transport strategies by incorporating facilities such as EV charging facilities and share bike / share scooter stations. The aim of the hub is to reduce reliance on single occupancy vehicle travel to the park by facilitating alternatives.

2.2.7 Masterplan Feature

Developable land will be maximised and plot sizes will be flexible to accommodate a variety of clients. Regular shaped plots will provide the versatility to adapt to evolving needs. The park will target high employment-generating uses and provide opportunities for links between foreign direct investment and small and medium sized enterprises. Large plots aim to attract large-scale multinational corporations that will function as ‘anchor tenants’ for the park. They will kick-start job creation and offer long term stability for the business ecosystem. They will act as catalysts for the creation of a business community within the park.

2.2.8 Masterplan Feature

The establishment of an Innovation Centre by the lake would provide spaces and resources to attract start-ups and SMEs, adding diversity and creativity to the ecosystem. A landmark building with co-working spaces, meeting places, and accelerator and mentorship programs can offer opportunities for networking, knowledge-sharing and collaboration between the large tenants and emerging SMEs. Central café and restaurant facilities at this location can serve the whole park with the outdoor space around the lake providing a focal point for park events and activities.

2.2.9 Masterplan Feature

A new substation is proposed in the southwest corner which can form an ‘Energy Hub’. In addition to the substation, feasibility for the provision of a deep geothermal energy station is being explored at this location. If successful, this would provide a local renewable energy source and act as a model for geothermal energy elsewhere in Ireland. The addition of a visitor centre at a successful energy station would provide opportunities for local residents and visitors to learn about sustainable energy, enhancing awareness, education and community engagement.

3 Biodiversity overview of the Masterplan Area

The following sections provide a description of the habitats occurring within and immediately adjacent to the project. Figure 3.1 provides a Habitat Map of the lands surrounding the proposed road. This habitat map and the description of habitats provided below is based on a review of aerial and satellite imagery and a field-surveys completed in late September 2017, November 2017, May 2018; June 2018; November 2022 and September 2023. All habitats occurring within and adjacent to the proposed road corridor are categorised according to the Heritage Council’s *Guide to Habitats in Ireland* (Heritage Council, 2000). *The Guide to Habitats in Ireland* classifies habitats according to a hierarchical framework with Level 1 habitats representing broad habitat groups, Level 2 representing habitat sub-groups and Level 3 representing individual habitat types.
Four Level 1 broad habitat groups were identified within and adjacent to the project. These include Freshwater, Grassland, Woodland and Cultivated & Built Land habitats. The level 3 habitat types occurring within each of this habitat groups are described under the following sub-sections.

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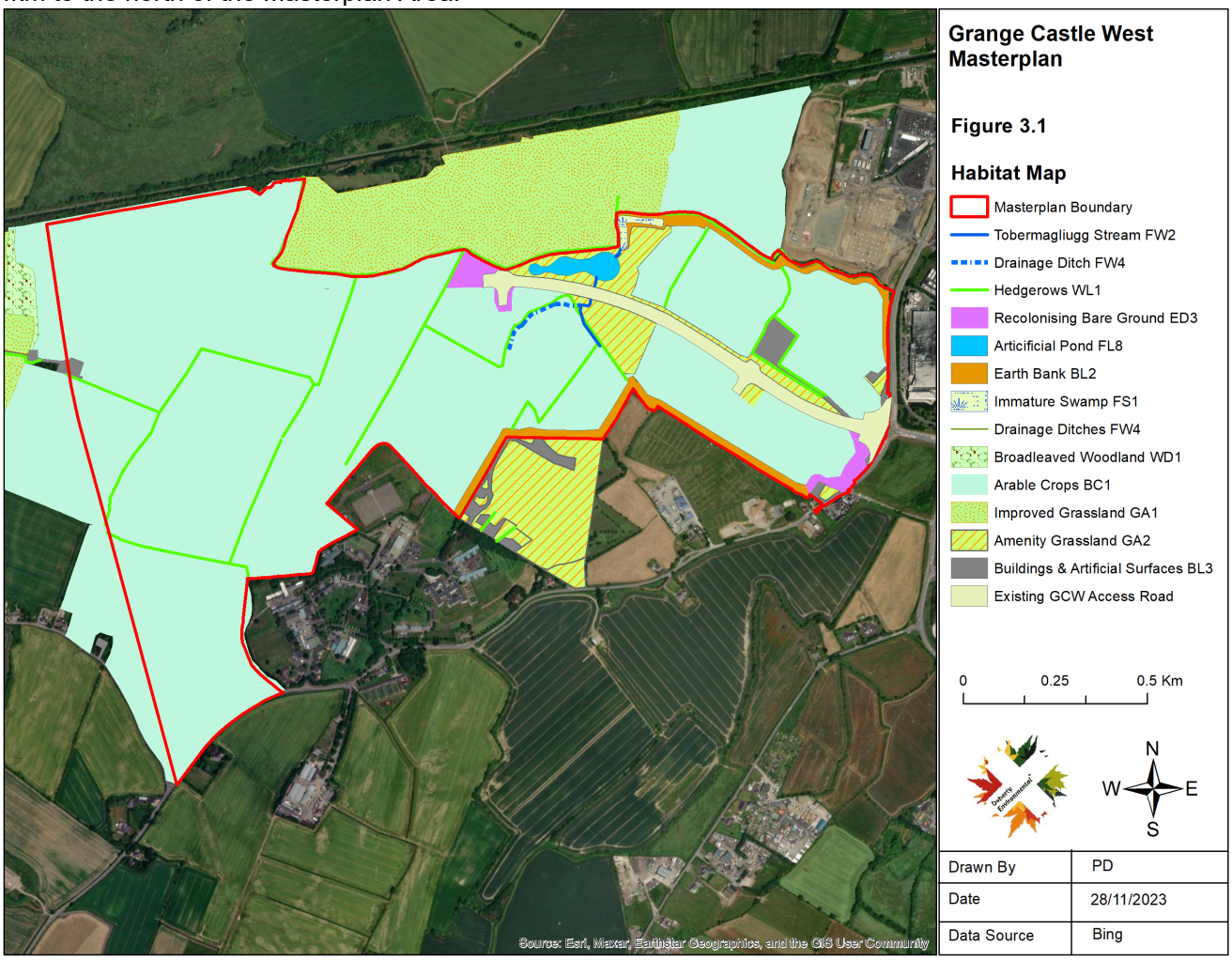
3.1.1 Freshwater Habitats

The freshwater habitats occurring within the Masterplan Area is comprised of the Tobermaclugg Stream (also known as the Coldblow Stream), an attenuation pond associated with the Grange Castle West Access Road and an integrated conservation wetland associated with the Grange Castle West Access Road. The Griffeen River occurs to the east of the Masterplan Area while the Grand Canal is located to the north. Drainage ditches, which are ephemeral in nature also occur along field boundaries crossed by the proposed road.

The Tobermaclugg Stream flowing north through the site is representative of a minor lowland depositing stream. The upper stretch of this stream in the vicinity of the proposed road is choked with abundant macrophytes, dominated by *Apium nodiflorum*. This watercourse flows into the River Liffey approximately 4km to the north of the Masterplan Area.



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Drainage ditches occur along the majority of the hedgerow field boundaries crossed by the proposed road. However the majority of these are ephemeral/transient freshwater features and are only likely to convey surface water during times of flood. During all field surveys these ditches were dry and did not support wetland vegetation.

3.1.2 Cultivated & Built Land

Arable crops (BC1), tilled land (BC3) and buildings and artificial surfaces (BL3) make up the cultivated and built land habitats occurring within and adjacent to the proposed road corridor. The arable crop and tilled land habitats support little native flora and are of low ecological value. The buildings and artificial surfaces habitats comprise existing road surfaces at the eastern end of the alignment and hard standing and access road associated with the halting site to the north of the proposed road corridor.

3.2 Fauna

3.2.1 Birds

A range of commonly occurring passerine species were noted within the lands during the site surveys in September 2017, May and June 2018. Herring gulls were also recorded frequently overflying the area. Other species recorded in the vicinity of the site during Grand Canal surveys (ROD, 2015; Tobins, 2015) include whitethroat, chiffchaff, willow warbler, blackcap, tree sparrow, blue tit, great tit, long-tailed tit, bullfinch, chaffinch, goldfinch, greenfinch, swallow, meadow pipit, robin, skylark, song thrush and starling. In addition three yellowhammers were recorded to the north of the Grand Canal and the proposed road corridor in the vicinity of Adamstown (Tobins, 2015).

Bird surveys completed during the breeding season of 2021, early breeding season of 2022 and during September 2023 recorded the presence of breeding yellowhammer within the Masterplan lands. Yellowhammer is a species of high conservation concern (red-listed).

The EIAR of the EdgeConneX Ireland Ltd. (2019) project, which is located to the north of and adjacent to the Masterplan Area, details of previous ecological surveys completed in the Grange Castle area between 2016 – 2018 were set out with buzzard being the only species noted with respect to this baseline survey data. During the baseline surveys completed for the EdgeConneX Ireland Ltd. project on the 22nd November and 12th December 2018 three species of high conservation concern, namely lapwing, snipe and meadow pipit were recorded. Other species recorded of medium conservation concern include skylark and linnet.

Of these species only lapwing represents a species that can be listed as a special conservation interest bird species of SPAs in Ireland. There are no SPAs in the wider area surrounding the Masterplan Area (see Figure 5.2 below) that include lapwing as a special conservation interest bird species.

Summary baseline data collected between February and April 2022 for a proposed future planning application within the Masterplan Area identified the presence of golden plover within and adjacent to the Masterplan Area. Flocks of up to circa 500 golden plover were observed in flight over the site and on the ground in arable land, outside of and to the north of the Masterplan Area. The summary data provided to

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South Dublin County Council also included observations of smaller numbers of golden plover, up to 30 individuals on the ground roosting or foraging, within the Masterplan Area.

Similar to lapwing, golden plover is representative of a species that can be listed as a special conservation interest bird species of SPAs in Ireland. Of the SPAs occurring in the wider area surrounding the Masterplan Area (see Figure 5.2 below), the North Bull Island SPA is the only one that lists golden plover as a special conservation interest. The North Bull Island SPA is located c. 19km to the east of the Masterplan Area.

3.2.2 Non-Volant Mammals

A dedicated otter survey of the Grand Canal, to the north of the Masterplan Area, between the 12th Lock and Hazelhatch was completed between June and September 2016 (FERS, 2016), between June and November 2018 (DEC Ltd.); between September 2021 and January 2022 (DEC Ltd.). The surveys found that the entire stretch survey area, with the exception of a c. 300m buffer zone west from the 12th Lock was used by otters. Spraints were regularly recorded along the canal with tracks/trails and slides also ubiquitous along the length of the survey area. Otters were observed foraging within the Grand Canal on a number of occasions during surveys in 2018 by DEC Ltd.

No field signs indicating the presence of otters along the Tobermaclugg Stream or within the Masterplan Area have been recorded during all baseline surveys completed within the Masterplan Area. The Tobermaclugg Stream is of low fisheries habitat potential and offers sub-optimal foraging habitat for otters.

During non-volant mammal surveys within the Masterplan Area all field boundaries were walked and a search of field sign indicating the presence of badgers (as well as otters) was undertaken along these boundaries. No evidence of otters or badgers or their holts/setts were identified along these field boundaries.

3.2.3 Bats

Focused surveys for bat activity within the Masterplan Area was completed during May, June and August 2018. Monitoring of nightly bat activity was completed from three monitoring points along/adjacent to the Masterplan Area. High levels of bat activity were recorded along the hedgerows in the vicinity of the monitoring points during the field surveys. Further information on bat activity levels recorded during monitoring is provided in the Ecological Impact Assessment of the proposed Grange Castle West Access Road. Structures occurring within and adjacent to the Masterplan Area were surveyed for the presence of roosting bats. This included roost emergence surveys at the farmyard to the west of the Masterplan Area and the pump house within the Masterplan Area. No bats were recorded emerging from these structures.

3.2.4 Fish & Amphibians

Historical records for the presence of smooth newt and common frog are held by the NBDC for the tetrads within which the Masterplan Area is situated and suitable, albeit limited, habitat for these species occurs along the Tobermaclugg Stream. The attenuation pond and ICW, installed as part of the Grange Castle West Access Road provides suitable habitat for these species.

The fisheries potential of the Tobermaclugg Stream is considered to be low with no suitable salmonid or lamprey spawning or holding habitat present.

3.2.5 Terrestrial Invertebrates

Terrestrial invertebrates recorded in the vicinity of the Masterplan Area during recent surveys along the Grand Canal (ROD, 2016) include a range of odonata species (brown hawker; common hawker; variable damselfly; common blue damselfly; blue-tailed damselfly; large-red damselfly; common darter) and lepidoptera species (oblique carpet; speckled wood; large white; green-veined white; small white; common blue; small tortoiseshell; meadow brown and painted lady).

The Grand Canal is known to support a number of protected, rare and threatened aquatic invertebrate species such as white-clawed crayfish and Vertigo snails. No suitable habitat for these species occur within the Masterplan Area and there was no evidence of white-clawed crayfish occurring along the upper section of the Tobermaclugg Stream that occurs within the Masterplan Area.

4 Is the Masterplan Necessary for the conservation Management of European Sites

The Masterplan has been described in Section 2 of the Screening Report and it is clear from the description provided that the project is not directly connected with or necessary for the future conservation management of any European Sites.

5 identification of European Sites within the zone of influence of the project

Current guidance (OPR, 2021) informing the approach to screening for Appropriate Assessment defines the zone of influence of a plan or project as the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. The OPR guidelines recommend that for proposed development areas located within or immediately adjacent to European Sites, the relevant European Site should be automatically selected for consideration in the screening exercise. The Masterplan Area does not occur within or bound any European Sites. As such this screening exercise is required to turn its attention to examining whether or not the Masterplan could result in likely significant effects to other European Sites in the surrounding area. This examination is completed using the Source-Pathway-Receptor model, details of which are set out below.

5.1 Source-Pathway Receptor Model

For projects that are not located within European Sites the OPR guidelines recommend that the European Sites occurring within the zone of influence of the project is established on a case-by-case basis using the Source-Pathway-Receptor (SPR) model. In order to identify the European Sites that could be located within the zone of influence, the current digital mapping (shapefile) of European Sites in Ireland[2], as published by the NPWS, was reviewed to identify the European Sites that could conceivably be connected to the Masterplan Area via pathways.

[2] **Current SAC shapefile layer dated April 2022; current SPA shapefile layer dated October 2021**

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All European Sites occurring in the wider surrounding area were identified and these sites are shown on Figure 5.1 and Figure 5.2 below.

Table 5.1 lists the European Sites shown on Figures 5.1 and 5.2 and the spatial relationship between each of these European Sites and the Masterplan Area is shown on Figure 5.1 & 5.2.
The next step of the Screening Assessment is to identify which, if any of these sites occur within the zone of influence of the Masterplan Area. As the nearest European Site (Rye Water Valley SAC) is located at a remote distance (approximately 4km) from the Masterplan Area, the project will not have the potential to result in direct impacts to European Sites, where direct impacts are defined as impacts that arise as a result of direct loss habitat, direct disturbance to habitats as a result of physical interactions such as damage; mortality to fauna as a result of physical interactions. Thus this Screening exercise focuses on investigating whether the project will have the potential to result in indirect effects to European Sites or affect mobile species associated with European Sites beyond the boundaries of their designated conservation areas. Indirect impacts are defined as impacts to European Site receptors, which are not a direct result of the project, are often produced away from the or as a result of a complex pathway. A theoretical example of an indirect impact in this context is the release of polluted waters from a Masterplan Area, the conveyance of associated contaminants downstream with resultant pollution impacts and associated pressure to habitats and fauna that are sensitive to pollution.

A source-pathway-receptor model has been used to establish which European Sites could occur within the sphere of influence of potential indirect impacts. Under such a model the Masterplan, as described above, represents the source.

Potential impact pathways are listed and considered in Section 5.1.1 below.

The receptors represent European Sites and their associated qualifying features of interest.

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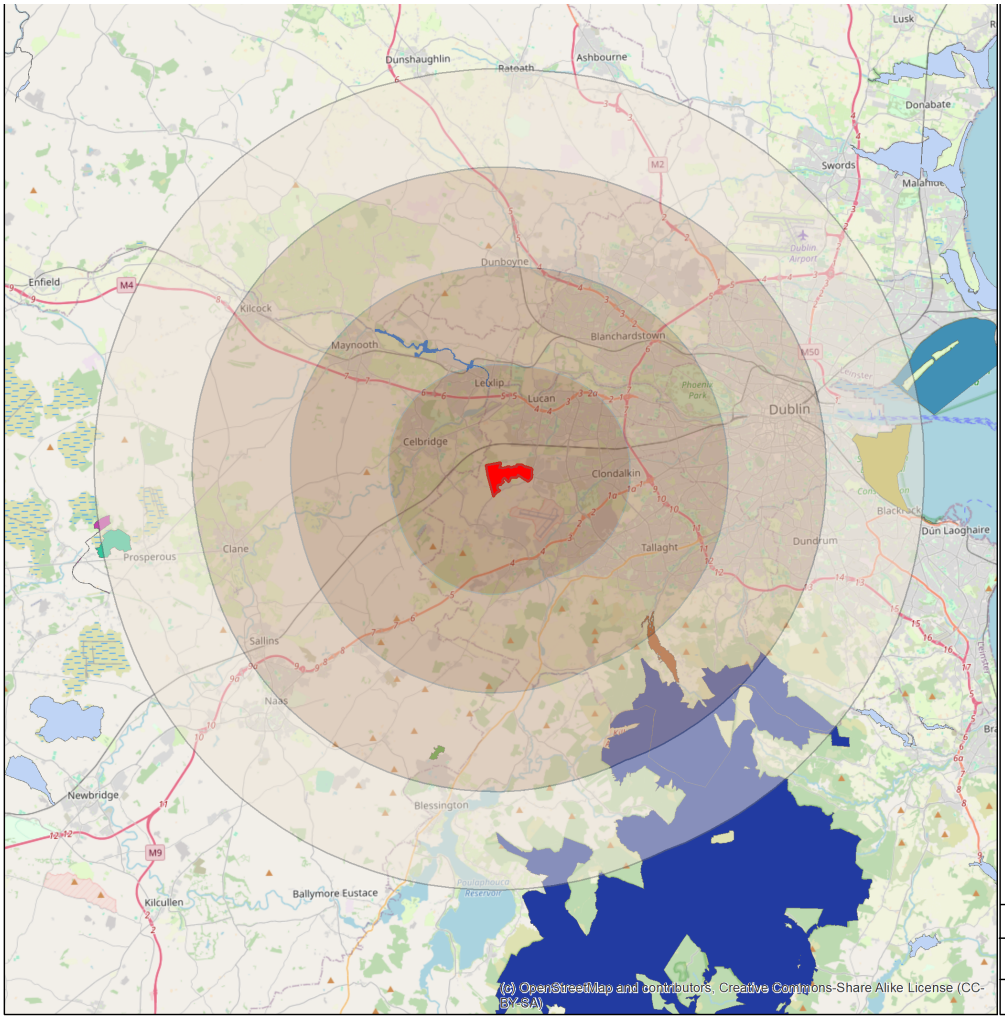

Grange Castle West Masterplan

Figure 5.1

SACs occurring in the Wider Surrounding Area

- Masterplan Boundary

5km Buffer Rings

- 0.00 - 5.00
- 5.00 - 10.00
- 10.00 - 15.00
- 15.00 - 20.00

SACs

- Ballynafagh Bog SAC
- Ballynafagh Lake SAC
- Glenasmole Valley SAC
- North Dublin Bay SAC
- Red Bog, Kildare SAC
- Rye Water Valley/Carton SAC
- South Dublin Bay SAC
- Wicklow Mountains SAC
- Other SACs

0 5 10 Km

N W E S

Drawn By	PD
Date	28/11/2023
Data Source	Bing

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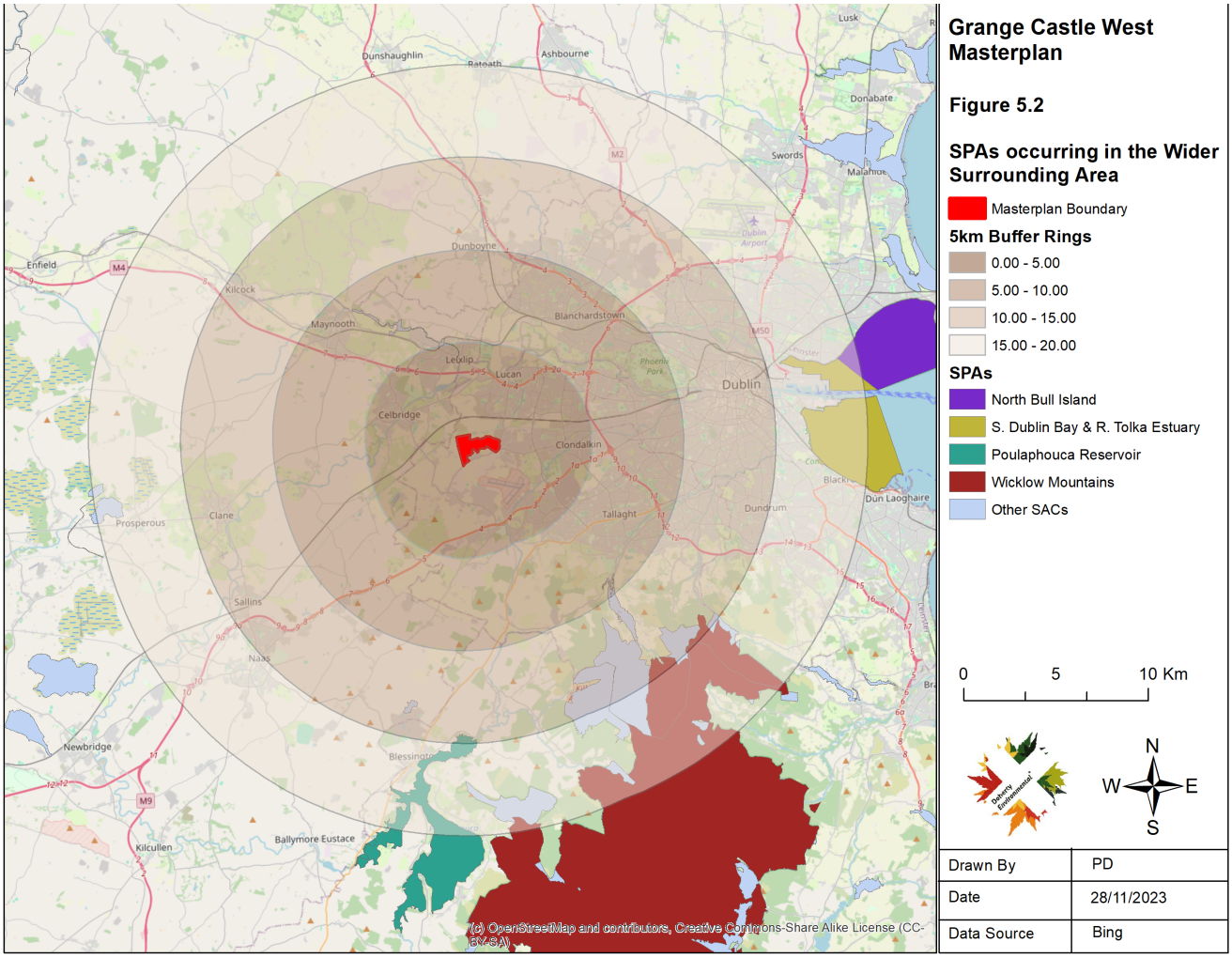

5.1.1 Impact Pathways

The construction and operation of new development projects, such as those that are likely to be provided within the Masterplan Area can, in theory, generate the following emissions:

- Emissions to surface water
- Emissions to groundwater
- Noise and vibration emissions
- Emissions to air

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- Light emissions;
- Visual emissions;
- Mobile species pathway; and
- Human Disturbance Pathway

Whether each of these potential pathways occur in the context of the current project and connect the project to any European Sites in the wider surrounding area is examined in the following bullet points:

5.1.2 Hydrological Pathways

The River Liffey, which receives surface waters draining the Masterplan Area, drains to Dublin Bay, where a number of European Sites are located. A total of four European Sites are located at Dublin Bay. These European Sites are shown in Figure 5.1 and 5.2 and comprise the North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA, and South Dublin Bay & Tolka Estuary SPA. The River Liffey drains to the area of Dublin Bay that supports sections of the North Dublin Bay SAC, South Dublin Bay & Tolka Estuary SPA and North Bull Island SPA.

There is no surface water pathway connecting the Masterplan Area site to the South Dublin Bay SAC. Modelling of the Liffey Estuary and Dublin Bay has shown that the waters from the Liffey draining into Dublin Bay are deflected east and north towards Dollymount and Howth. The presence of the South Great Wall in Dublin Bay provides a barrier to the movement of waters towards the south (Dowly & Bedri, 2007; Bedri et al., 2012; Camp, Dresser & McKee, 2012). As such there is no surface water pathway between the Masterplan Area and this SAC.

5.1.3 Air Pathway

Given the absence of information, in terms of the developments that will be facilitated by the Masterplan and the potential impacts future developments facilitated by the Masterplan will have on air quality in the wider surrounding area, the potential for the Masterplan to contribute to perturbations to air quality in the surrounding is identified. It is noted that the future developments within the Masterplan Area will be reflective of enterprise and commercial operations similar to those occurring at the existing Grange Castle Business Park to the east. Pertinent to the consideration of air emissions and a potential air pathway, is the location of the Masterplan Area within the Air Zone “Zone A” as defined by the EPA and the current air quality for the Masterplan Area and surrounding area, which is classified by the EPA (as of January 2024) at Good status.

For the purposes of this examination the future operations within the Masterplan Area are considered to be similar to those occurring in the adjacent Grange Castle Business Park to the east. Given the current good air quality at Grange Castle it can be concluded that the types of operations currently operational at Grange Castle, along with other human activities, are not having a negative impact on air quality.

Furthermore, AWN Air Quality Specialists, who provide expertise in the field of air impact assessment and air modelling assessment, have been consulted with respect to the potential for future developments

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associated with the Masterplan Area to result in cumulative negative impacts to air quality in the wider surrounding area. AWN have extensive knowledge of Grange Castle, having undertaken several cumulative air modelling assessments in the area for a range of development types including data centres, energy centres and pharmaceutical facilities. The results of these air modelling assessments show a general trend, in that the impact to air quality from any one facility is limited. Under a scenario where impact to air quality relates to emissions from a facility, which lead to a greater than 25% increase in ambient air quality standards[3], the buffer zone for such a facility, within which such increases are likely to be detectable, is generally less than 2km. When a cumulative air modelling assessment of such a scenario is completed, whereby the emissions from the individual facility, and all other facilities at Grange Castle with emissions to air, is completed, it has been found that the buffer zone where increases are likely to be detectable will be within 5km.

In view of the above it is considered reasonable to predict that:

1. The Grange Castle West Masterplan Area will support similar facilities to those occurring at the existing Grange Castle business park; and that

2. The zone of influence of any emissions to air arising from future facilities within the Grange Castle West Masterplan Area will be within a 5km buffer of the Masterplan Area .

On this basis a zone of influence of 5km is set for any potential air emissions arising from the future developments within the Masterplan Area.

5.1.4 Noise & Vibration

Given that the Masterplan Area is located at a remote distance from the European Sites in the wider surrounding area, with the nearest, the Rye Water Valley SAC, occurring approximately 4km to the north and the presence of urban land cover between the Masterplan Area and this SAC, there will be no potential for a noise pathway to function as a potential impact pathway between the Masterplan Area and European Sites in the surrounding area.

5.1.5 Light

Given that the Masterplan Area is located at a remote distance from the European Sites in the wider surrounding area, with the nearest, the Rye Water Valley SAC, occurring approximately 4km to the north and the presence of urban land cover between the Masterplan Area and this SAC, there will be no potential for a light pathway to function as a potential impact pathway between the Masterplan Area and European Sites in the surrounding area

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[3] **In AWN's experience garnered from assessments completed at Grange Castle this scenario would be representative of a worst case scenario**

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5.1.6 Visual Disturbance

Given that the Masterplan Area is located at a remote distance from the European Sites in the wider surrounding area, with the nearest, the Rye Water Valley SAC, occurring approximately 4km to the north and the presence of urban land cover between the Masterplan Area and this SAC, there will be no potential for a visual disturbance pathway to function as a potential impact pathway between the Masterplan Area and European Sites in the surrounding area.

5.1.7 Mobile Species Pathway

The qualifying features of interest of the European Sites that occur in the wider surrounding area as shown on Figure 5.1 and 5.2 above that are representative of mobile/vagile species are special conservation interest bird species of the SPAs and otters of the Wicklow Mountains SAC.

As noted in Section 3 above otters do not rely on the Masterplan Area and there is no connection between the Masterplan Area and the otter population of the Wicklow Mountains SAC. As such there is no mobile species pathway connecting the Masterplan Area to this SAC or any other SACs.

As noted in Section 3 above two bird species that can be listed as special conservation interest bird species of SPAs in Ireland have been identified within or within the vicinity of the Masterplan Area. These include lapwing and golden plover. No SPAs occurring in the wider area surrounding the Masterplan Area include lapwing as a special conservation interest. The North Bull Island SPA, located c. 19km to the east, is the only SPA that includes golden plover as a special conservation interest.

Lapwing were recorded during non-breeding season surveys in 2018 whilst golden plover were recorded during non-breeding season and passage season surveys in 2023. It is noted that neither of these species were recorded during other bird surveys completed during the winter season of 2017; 2020; 2021; and 2022. Both lapwing and golden plover are known to be flexible foragers during the non-breeding season, adapting to the availability of suitable foraging habitat within the flocks home range (Gillings & Fuller, 1999). They can respond within seasons to land use activities that change the nature of land cover and suddenly provide suitable habitat. Changes in land use e.g. types of crops grown, changes between cereals and other break crops such as oil seed rape between years and within years can influence the invertebrate biomass and in turn foraging resource and use by/presence of golden plover and lapwing.

In terms of core foraging distances of golden plover, a maximum distance of 12km has been noted by Gillings & Fuller (1999). On the basis of this 12km maximum foraging distance the Masterplan Area is located c. 7km outside the foraging zone of the golden plover population for which the North Bull Island SPA is designated. In light of this no mobile species pathway connects the Masterplan Area to any SPAs.

5.1.8 Summary of Pathways & Zone of influence

Following the above consideration of pathways that could conceivably connect the Masterplan Area to European Sites in the wider surrounding area it has been found that the hydrological pathway and aerial pathway are the only two pathway that require further examination as part of this screening exercise.

The European Sites that require further examination with respect to a hydrological pathway are the North Dublin Bay SAC, South Dublin Bay & Tolka Estuary SPA and North Bull Island SPA.

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The European Sites that require further examination with respect to aerial pathway is the Rye Water Valley SAC, which is the only European Sites occurring within a 5km buffer distance of the Masterplan Area.

The remainder of this screening exercise examines the potential for the Masterplan to result in likely significant effects to the three no. European Sites at Dublin Bay as a result of a hydrological pathway and the Rye Water Valley SAC as a result of an aerial pathway.

pathway.

5.2 Qualifying features of interest/special conservation interests occurring within the Zone of influence of the project

Table 5.1 below lists the qualifying features of interest/special conservation interests of the four European Sites occurring within the zone of influence of the Masterplan.

Table 5-1: Qualifying Features of Interest/Special Conservation Interests Occurring Within the Zone Of Influence of the Masterplan Area

European Site	Qualifying Interest	Does the qualifying feature of interest/special conservation interest occur within the zone of Influence of the Masterplan
Rye Water Valley SAC	Petrifying springs with tufa formation (Cratoneurion)	Yes. This habitat supports sensitive bryophytes including brown moss communities of international conservation importance. These bryophytes are sensitive to aerial emissions. For instance critical levels of ammonia concentration in air for this type of community is 1.0 µg-NH^3/m^3 (Cape et al. 2009). This SAC is located approximately 4km from the masterplan area and falls into the precautionary 5km zone of influence used for aerial emissions.
	Vertigo angustior (Narrow-mouthed Whorl Snail)	Yes. This species relies upon the spring habitats occurring within this SAC that are known to be sensitive to aerial emissions and deposition. This SAC is located approximately 4km from the masterplan area and falls into the precautionary 5km zone of influence used for aerial emissions.
	Vertigo moulinsiana (Desmoulin's Whorl Snail)	Yes. This species relies upon the spring habitats occurring within this SAC that are known to be sensitive to aerial emissions and deposition. This SAC is located approximately 4km from the

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European Site	Qualifying Interest	Does the qualifying feature of interest/special conservation interest occur within the zone of Influence of the Masterplan
		masterplan area and falls into the precautionary 5km zone of influence used for aerial emissions.
North Dublin Bay SAC	Mudflats and sandflats not covered by seawater at low tide	Yes. Hydrological pathways in the form of surface water and wastewater discharges will have the potential to link the Masterplan Area to this qualifying habitat.
	Annual vegetation of drift lines	Yes. Hydrological pathways in the form of surface water and wastewater discharges will have the potential to link the Masterplan Area to this qualifying habitat.
	Salicornia and other annuals colonizing mud and sand	Yes. Hydrological pathways in the form of surface water and wastewater discharges will have the potential to link the Masterplan Area to this qualifying habitat.
	Spartina swards (Spartinion maritimae)	Yes. Hydrological pathways in the form of surface water and wastewater discharges will have the potential to link the Masterplan Area to this qualifying habitat.
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	Yes. Hydrological pathways in the form of surface water and wastewater discharges will have the potential to link the Masterplan Area to this qualifying habitat.
	Petalwort (Petalophyllum ralfsii)	No. This species is reliant on humid dune slacks occurring within the terrestrial environment. This dune slacks will not be influenced by hydrological emissions.
	Mediterranean salt meadows (Juncetalia maritimi)	Yes. Hydrological pathways in the form of surface water and wastewater discharges will have the potential to link the Masterplan Area to this qualifying habitat.

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European Site	Qualifying Interest	Does the qualifying feature of interest/special conservation interest occur within the zone of Influence of the Masterplan
	Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (white dunes)	No. This is a terrestrial habitat that will not be influence by hydrological emissions.
	Fixed coastal dunes with herbaceous vegetation (grey dunes)	No. This is a terrestrial habitat that will not be influence by hydrological emissions.
	Humid dune slacks	No. This is a terrestrial habitat that will not be influence by hydrological emissions.
North Dublin Bay SPA	Light-bellied Brent Goose (*Branta bernicla hrota*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area .
	Shelduck (*Tadorna tadorna*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Teal (*Anas crecca*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Pintail (*Anas acuta*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.

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European Site	Qualifying Interest	Does the qualifying feature of interest/special conservation interest occur within the zone of Influence of the Masterplan
	Shoveler (*Anas clypeata*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Oystercatcher (*Haematopus ostralegus*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Golden Plover (*Pluvialis apricaria*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Grey Plover (*Pluvialis squatarola*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Knot (*Calidris canutus*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Sanderling (*Calidris alba)*	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Dunlin (*Calidris alpina*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Black-tailed Godwit (*Limosa limosa*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.

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European Site	Qualifying Interest	Does the qualifying feature of interest/special conservation interest occur within the zone of Influence of the Masterplan
	Bar-tailed Godwit (*Limosa lapponica*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Curlew (*Numenius arquata*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Redshank (*Tringa totanus*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Turnstone (*Arenaria interpres*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Black-headed Gull (*Larus ridibundus*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Wetlands & Waterbirds	Yes. Hydrological pathways in the form of surface water and wastewater discharges will have the potential to link the project to littoral wetland habitat.
South Dublin Bay River Tolka Estuary SPA	Light-bellied Brent Goose (*Branta bernicla hrota*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Oystercatcher (*Haematopus ostralegus*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.

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European Site	Qualifying Interest	Does the qualifying feature of interest/special conservation interest occur within the zone of Influence of the Masterplan
	Ringed Plover (*Charadrius hiaticula*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Grey Plover (*Pluvialis squatarola*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Knot (*Calidris canutus*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Sanderling (*Calidris alba*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Dunlin (*Calidris alpina*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Bar-tailed Godwit (*Limosa lapponica*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Redshank (*Tringa totanus*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Black-headed Gull (*Croicocephalus ridibundus*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.

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European Site	Qualifying Interest	Does the qualifying feature of interest/special conservation interest occur within the zone of Influence of the Masterplan
	Roseate Tern (*Sterna dougallii*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Common Tern (*Sterna hirundo*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Arctic Tern (*Sterna paradisaea*)	Yes. This species relies on mudflats and other littoral qualifying habitats/wetland habitats that are linked to potential hydrological emissions from the Masterplan Area.
	Wetlands & Waterbirds	Yes. Hydrological pathways in the form of surface water and wastewater discharges will have the potential to link the project to littoral wetland habitat.

Following on from Table 5.1 above, Table 5.2 provides a summary of the qualifying features of interest occurring within the zone of influence of the Masterplan Area. The qualifying features of interest are grouped into broader groups that will be referred to in the assessment sections below.

Table 5-2: Summary of Qualifying Features of Interest

Qualifying feature Group	Qualifying feature of interest	Associated European Site
Freshwater/Aquatic Habitats	Petrifying springs with tufa formation (Cratoneurion)	Rye Water Valley SAC
Freshwater Aquatic Species	Vertigo angustior (Narrow-mouthed Whorl Snail)	Rye Water Valley SAC

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Qualifying feature Group	Qualifying feature of interest	Associated European Site
	Vertigo moulinsiana (Desmoulin's Whorl Snail)	Rye Water Valley SAC
Coastal/Littoral Habitats	Mudflats and sandflats not covered by seawater at low tide	North Bull Island SAC
	Annual vegetation of drift lines	North Bull Island SAC
	Salicornia and other annuals colonising mud and sand	North Bull Island SAC
	Spartina swards (Spartinion maritimae)	North Bull Island SAC
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	North Bull Island SAC
	Mediterranean salt meadows (Juncetalia maritimi)	North Bull Island SAC
Coastal/Littoral Bird Species	Special conservation interests wetland bird species	South Dublin Bay River Tolka Estuary SPA & North Dublin Bay SPA

6 Description of Elements of the Masterplan that could result in likely significant effects to qualifying features of interest

During the screening for Appropriate Assessment for Variation No. 1 to the South Dublin County Council County Development Plan 2016 – 2022 the likely significant effects to the environment that were identified as having the potential to arise as a result of a proposed Masterplan were identified. In terms of offsite impacts at European Sites the elements of the Variation No. 1 that were identified as having a conceivable potential to result in likely significant effects relate to:

1. Potentially polluting emissions associated with surface water discharges from the Masterplan Area to the surrounding surface water network,

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2. Wastewater emissions from the Ringsend WwTP at Dublin Bay, and

3. Air emissions from facilities that are likely to be developed within a proposed Masterplan Area on foot of the proposed rezoning.

With respect to wastewater emissions it is noted that this was identified as a potential risk prior to the commencement of the upgrade of the Ringsend WwTP. The upgrades to this plant are now well under way with Uisce Eireann setting a completion date for the upgrades for 2025. As such it is expected that adequate wastewater treatment will be in place to service all wastewater generated within the wider Dublin area prior to the commencement of the operation phase of any future developments facilitated by the Masterplan. As such the generation and emission of wastewater from any future developments within the Masterplan Area to the Ringsend WwTP will not represent a potential for likely significant effects to European Sites. As such a wastewater emission pathway to European Sites at Dublin Bay can be screened out.

It is considered that, given the proposals of the Masterplan, which are consistent with the Variation No. 1, in that it seeks to establish a planning framework for the future development of commercial and enterprise land use activities within the Masterplan Area, the potential emissions, numbered 1 and 3 above, that were identified for the Variation remain applicable to the Masterplan and this screening assessment.

7 Examination of likely significant effects

Table 7.1 provides a Screening Assessment in line with EU Guidance (2021) Assessment Criteria used to examine the potential of the Masterplan to adversely impact upon the range of qualifying features of interest/special conservation interests of European Sites occurring within the zone of influence of the Masterplan Area.

Table 7-1: Examination of Likely Significant Effects

Assessment Criteria	
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) to the qualifying interests of European Sites occurring within the zone of influence of the project:	
Size and Scale	The Masterplan Area amounts to approximately 190 ha of land.
Land-take	The project does not involve any land-take from European Sites. The future development of the Masterplan Area will result in the loss of arable land and improved agricultural grassland. The potential also exists for the loss of existing field boundary hedgerows and treelines.

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Distance from European sites or key features of the site	The nearest European Sites to the Masterplan Area is the Rye Water Valley SAC, located approximately 4km to the north.
Resource requirements	No resources associated with the above listed European Sites will be required for, or utilised by the project.
Emissions	***Surface Waters*** Surface water generated at the proposed Masterplan Area during the development and operation of future projects will drains to the surrounding surface water network which eventually drains to Dublin Bay. The inadequate provision of surface water management measures during future land use activities supported by the Masterplan will have the potential to result in perturbations to water quality in receiving waters downstream. In terms of the planning hierarchy applicable to the Masterplan Area the Masterplan sits under the South Dublin County Development Plan 2022 - 2028. The South Dublin County Council County Development Plan sets out a suite of environmental protection measures that are required to be implemented as part of new developments so that negative effects to the water quality of receiving watercourses are avoided. Avoiding such effects will in turn eliminate the potential for receiving surface watercourse to function as a hydrological pathway between the Masterplan Area and the littoral qualifying habitats and species (as listed in Table 5.2) of the European Sites occurring at Dublin Bay. The environmental protection measures for all future developments at the proposed Masterplan Area, as detailed in County Development Plan, represent a best practice approach to the management of surface water at development sites. These measures, as set out in the County Development Plan are intended to guide future development, such as that relating to future enterprise and commercial facilities at the Masterplan Area, so that negative impacts to water quality will be avoided. Given that these environmental protection measures are intended to safeguard all surface waterbodies from pollution, they are

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required to be implemented regardless of hydrological connectivity or lack thereof to European Sites.

Furthermore of the three European Sites being examined as part of the assessment of the hydrological pathway, the nearest point to the Masterplan Area is approximately 27km downstream along the Tobermaclugg Stream, River Liffey and Liffey Estuary. The Tobermaclugg Stream drains to the River Liffey which in turn drains to the Liffey Estuary. The waters draining from the Masterplan Area and the waters discharging from it to the Liffey Estuary,via the Tobermaclugg Stream and River Liffey, represent a minor fraction of the overall volume of freshwater draining into the Liffey estuary and Dublin Bay. This will eliminate the potential for the project, even in the unlikely, worst case event of the release of contaminated surface water to the Tobermaclugg, from having an effect on the conservation status of European Sites downstream at Dublin Bay. Further details supporting this evaluation of an absence of a functional impact pathway established by the hydrological pathway between the Masterplan Area and the Dublin Bay European Sites are as follows:

- The volumes of surface water draining the Masterplan Area represents a miniscule fraction of the volumes discharging to the Liffey Estuary upstream of the Dublin Bay European Sites. This is supported by an examination of the area occupied by footprint of the Masterplan Area. The Masterplan Area represents 0.1% of the land surface occurring within the Liffey catchment and the runoff generated at the Masterplan Area will therefore represent a miniscule extent of the runoff draining from lands within this catchment. In the unlikely event that contaminated waters enter the Tobermaclugg Stream it is highly likely, based on the above that any associated pollutants will be adequately diluted within the River Liffey catchment and Liffey estuary downstream.

- Further to the fact that the Tobermaclugg waters draining the Masterplan Area represent a minor fraction of freshwater inputs to the Liffey estuary, it is noted that a hydrodynamic model for Dublin Bay showed that the medium flow rates of 15m^3/s was calculated for the River Liffey (DHI, 2018). There are multiple

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other sources of freshwater (11 in total, some of which include the River Dodder, Grand Canal, Royal Canal, River Cammock etc.) entering the Liffey Estuary. These other sources combine with the River Liffey discharges to further dilute freshwater discharging from the Tobermaclugg to the River Liffey. In light of this any discharges to the River Liffey Estuary from the Masterplan Area, via the Tobermaclugg will be thoroughly mixed and imperceptible downstream within the Liffey Estuary and will be further diluted by the tidal coastal waters at Dublin Bay.

- Finally, in support of the above, other studies have shown that pollutants in the estuary are rapidly mixed and become diluted within the estuary and Dublin Bay (O'Higgins and Wilson, 2005; Wilson and Jackson, 2011) again demonstrating that any potential for the release of contaminants to the Tobermaclugg will not have the potential to result in any perceptible effect to water quality downstream at Dublin Bay.

Air

All future developments facilitated by the Masterplan will be required to adhere to the policies and objectives of the South Dublin County Council County Development Plan 2022 - 2028. This includes the aims and objectives of NPO 64; Policy IE8; IE Objectives 1; and IE Objectives 3.

Adherence to the requirements of these policies and objectives during the construction and operation of any future developments within the Masterplan Area will ensure that potential impacts to local air quality and qualifying features of interest at the Rye Water Valley SAC, c. 4km to the north will be avoided.

It is further noted that the potential emissions to air arising from future facilities occurring within the Masterplan Area have been previously contemplated as part of the SEA and Screening for Appropriate Assessment for Variation No. 1 of the South Dublin County Council County Development Plan 2016 – 2022, which represents the initial plan that set out the future enterprise and employment land use for the

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	Masterplan Area. The SEA ER for Variation No. 1 set out environment management measures that are required to be implemented for all future project stage development within the Masterplan Area. These measures include a measure for operational air emissions as follows: *Any significant air emissions within the proposed rezoned lands will be regulated by the EPA in the form of an Industrial Pollution Control (IPC) or Industrial Emissions (IE) Licence. The facility will have strict air emissions limits outlined in the relevant licence which will be set to ensure compliance with ambient air quality standards. Prior to operation the facility will be required to undertake a stack height determination of all main emission points to ensure that all air emissions from the facility will be in compliance with the ambient air quality standards at all times. Secondly, all significant emission points regulated by the EPA will, in accordance with Council Directive 2010/50/EC (Industrial Emissions Directive) be required to ensure that they are adhering to the principles of BAT. The purpose of the Directive is to "ensure a high level of protection of the environment taken as a whole". The Directive has stated that the permit conditions including air emission limit values (ELVs) must be based on Best Available Techniques (BAT) with BAT conclusions the reference for setting permit conditions.* Given the requirements of the current South Dublin County Council County Development Plan outlined above and the environment management measures set out in the SEA ER for the Variation No. 1, which South Dublin County Council require to be implemented for all future development projects within the Masterplan Area, sufficient safeguards are already in place for this Masterplan to ensure that negative impacts to air quality and to the Rye Water Valley SAC do not arise as a result of the implementation of the Masterplan.
Excavation requirements	No excavations will be completed within or in close proximity to European Sites.
Describe any likely changes to qualifying features arising as a result of:	
Reduction of habitat area	The Masterplan Area is located at a remote distance from all qualifying habitats identified as occurring within its zone of influence. The implementation of the Masterplan will not result in a reduction in habitat area for any qualifying habitat or habitat relied upon by qualifying species of European Sites in the wider surrounding area.
Disturbance of key species	The Masterplan Area is not relied upon by populations of Annex 2 qualifying species of SACs or special conservation interest bird populations of SPAs. The Masterplan Area is located at a remote distance from the nearest SPA and SAC and will not have the potential to result in disturbance to European Site qualifying species.

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Habitat or species fragmentation	The proposed Masterplan Area will not have the potential to result in the fragmentation of qualifying habitats or the habitats upon which qualifying habitats species rely.
Reduction in species density	Given the absence of a function hydrological or aerial impact pathway between the Masterplan Area and the three European Sites at Dublin Bay and the Rye Water Valley SAC, as established in the preceding sections above, the Masterplan will not have the potential to result in a reduction in the densities of qualifying species supported by European Sites or the range of species that contribute to the overall integrity of European Sites.
Changes in key indicators of conservation status	The indicators of conservation status for the key habitats and species occurring within the zone of influence of the Masterplan Area include the percentage change in long-term populations of species; changes in the natural range of habitats and species; and the extent of habitat available to maintain the species population. Given the absence of a function hydrological or aerial impact pathway between the Masterplan Area and the three European Sites at Dublin Bay and the Rye Water Valley SAC, as established in the preceding sections above, the Masterplan will not have the potential to result in changes to key indicators of conservation status for European Sites.
Describe any likely impacts on European Sites as a whole in terms of:	
Interference with key relationships that define the structure and function of the site	The structure and function of the European Sites occurring within the zone of influence of the Masterplan are defined by both biotic and abiotic processes. Given the absence of a function hydrological or aerial impact pathway between the Masterplan Area and the three European Sites at Dublin Bay and the Rye Water Valley SAC, as established in the preceding sections above, the Masterplan will not have the potential to result in changes to key indicators of conservation status for European Sites.
In-Combination Effects	Given the absence of a function hydrological or aerial impact pathway between the Masterplan Area and the three European Sites at Dublin Bay and the Rye Water Valley SAC, as established in the preceding sections above, the Masterplan will not have the potential to combine with other plans or project in the surrounding area to result in likely significant effects to European Sites.

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Describe from the above the elements of the project or plan or combination of elements, where the above impacts are likely to be significant or where the scale of magnitude of impacts is not known.
It has been concluded that, provided all environmental safeguards are implemented at the project stage likely significant effects to the European Sites occurring within the zone of influence of the proposed Masterplan Area will be avoided. Therefore a Stage 2 Appropriate Assessment is not required.

8 References

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