

**Belfield / Blackrock
to City Centre Core
Bus Corridor Scheme**
March 2022

**Appropriate
Assessment
Report**

**BUS
CONNECTS**

SUSTAINABLE TRANSPORT FOR A BETTER CITY.

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1 Introduction

- 1 This report, which contains information to assist the competent authority to undertake a screening for Appropriate Assessment (AA) in respect of the Belfield / Blackrock to City Centre Core Bus Corridor Scheme (hereinafter referred to as the Proposed Scheme), has been prepared by Scott Cawley Ltd. on behalf of the National Transport Authority. It provides information on, and assesses the potential in view of best scientific knowledge for, the Proposed Scheme to have significant effects either individually or in combination with other plans or projects on the Natura 2000 network (hereafter referred to as European sites)¹. The Proposed Scheme aims to provide enhanced walking, cycling and bus infrastructure on this key access corridor in the Dublin region, which will enable and deliver efficient, safe, and integrated sustainable transport movement along the corridor.
- 2 Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of National Habitats and of Wild Fauna (as amended) (the “**Habitats Directive**”) requires that, any plan or project not directly connected with or necessary to the management of European sites, but likely to have significant effects thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the European sites in view of their conservation objectives. The requirements of Article 6(3) of the Habitats Directive, have been transposed into Irish law by part XAB of the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) (the “**2011 Birds and Habitats Regulations**”).

For the reasons set out in detail in this AA Screening Report, a Stage Two **Appropriate Assessment of the Proposed Scheme is required in this instance** as it cannot be concluded, in view of best scientific knowledge and on the basis of objective information, that the Proposed Scheme, either individually or in combination with other plans or projects, will not have a significant effect on the following European site(s): **North Dublin Bay SAC, South Dublin Bay SAC, Howth Head SAC, Rockabill to Dalkey Islands SAC, Wicklow Mountains SAC, Lambay Island SAC, South Dublin Bay and River Tolka Estuary SPA, Skerries Islands SPA, Lambay Island SPA, Ireland’s Eye SPA, North Bull Island SPA, Dalkey Islands SPA, Baldoyle Bay SPA, Howth Head Coast SPA, Malahide Estuary SPA, Rogerstown Estuary SPA Rockabill SPA, Wicklow Mountains SPA and The Murrough SPA.**

2 Methodology

2.1 Guidance

- 3 This Appropriate Assessment Screening Report has been prepared with regard to the following guidance documents, as relevant:
 - OPR Practice Note PN01. Appropriate Assessment Screening for Development Management (Office of the Planning Regulator, 2021);

¹ The Natura 2000 network is a European network of important ecological sites, as defined under Article 3 of the Habitats Directive 92/43/EEC, which comprises both special areas of conservation and special protection areas. Special conservation areas are sites hosting the natural habitat types listed in Annex I, and habitats of the species listed in Annex II, of the Habitats Directive, and are established under the Habitats Directive itself. Special protection areas are established under Article 4 of the Birds Directive 2009/147/EC for the protection of endangered species of wild birds. The aim of the network is to aid the long-term survival of Europe’s most valuable and threatened species and habitats.

In Ireland these sites are designated as *European sites* - defined under section 177R of the Planning and Development Act 2001 (as amended) Regulations as (a) a candidate site of Community importance, (b) a site of Community importance, (ba) a candidate special area of conservation, (c) a special area of conservation, (d) a candidate special protection area, or (e) a special protection area. They are commonly referred to in Ireland as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* Circular NPW 1/10 & PSSP 2/10;
- *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, 2001);
- *Communication from the Commission on the precautionary principle* (European Commission, 2000);
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019);
- EC (2013) *Interpretation Manual of European Union Habitats.* Version EUR 28. European Commission, and
- *OPR Practice Note PN01. Appropriate Assessment Screening for Development Management* (Office of the Planning Regulator, 2021).

2.2 Assessment Methodology

- 4 The above referenced guidance sets out a staged process for carrying out Appropriate Assessment. To determine if an Appropriate Assessment is required, documented screening is required. Screening identifies the potential for effects on the conservation objectives of European sites, if any, which would arise from a proposed plan or project, either alone or in combination with other plans and projects (i.e. likely significant effects).
- 5 Significant effects on a European site are those that would undermine the conservation objectives supporting the favourable conservation condition of the Qualifying Interest (QI) habitats and/or the QI/Special Conservation Interest (SCI) species of a European site(s).
- 6 Image 1 describes the steps involved in Stage One Screening for Appropriate Assessment.

Image 1: Stage One Screening Process for Appropriate Assessment



- 7 If the conclusions at the end of screening are that there is no likelihood of significant effects occurring on any European sites as a result of the proposed plan or project, either alone or in combination with other plans and projects, then there is no requirement to undertake a Stage Two Appropriate Assessment.
- 8 In establishing which European sites are potentially at risk (in the absence of mitigation) from the Proposed Scheme, a source-pathway-receptor approach was applied. In order for an impact to occur, there must be a risk enabled by having a source (e.g. water abstraction or construction works), a receptor (e.g. a European site or its QI(s) or SCI(s)²), and a pathway between the source and the receptor (e.g. by air for airborne

² The term Qualifying Interest (QI) is used when referring to the habitats or species for which an SAC is designated; the term Special Conservation Interest (SCI) is used when referring to the bird species (or wetland habitats) for which an SPA is designated.

pollution, or a pathway by a watercourse for mobilisation of pollution). For an impact to occur, all three elements must exist; the absence or removal of one of the elements means there is no possibility for the impact to occur.

- 9 The identification of source-pathway-receptor connection(s) between the Proposed Scheme and European sites essentially is the process of identifying which European sites are within the Zone of Influence (Zoi) of the Proposed Scheme, and therefore potentially at risk of significant effects. The Zoi is the area over which the Proposed Scheme could affect the receiving environment such that it could potentially have significant effects on the QI habitats or QI/SCI species of a European site, or on the achievement of their conservation objectives³.
- 10 The identification of a source-pathway-receptor link does not automatically mean that significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g. extent and duration of construction works), the characteristics of the pathway (e.g. direction and strength of prevailing winds for airborne pollution) and the characteristics of the receptor (e.g. the sensitivities of the European site and its QIs/SCIs).

2.3 Desktop Data Review

- 11 The desktop data sources used to inform the assessment presented in this report are as follows (accessed in February 2022):
 - Online data available on European sites and on Natural Heritage Areas (NHAs) or proposed Natural Heritage Areas (pNHAs) from www.npws.ie⁴, including conservation objectives documents;
 - Online data records available on National Biodiversity Data Centre Database (NBDC, 2022);
 - Online data records made available via an NPWS data request (NPWS, 2020);
 - Information on the status of EU protected habitats and species in Ireland (National Parks & Wildlife Service, 2019a, 2019b and 2019c);
 - Ordnance Survey Ireland (OSI) orthophotography (from 1995 to 2012) for the Proposed Scheme study area;
 - Habitat and species GIS datasets provided by the NPWS, including Article 12 and Article 17 data⁵;
 - Records from the Botanical Society of Britain and Ireland (BSBI);
 - Information contained within the Flora of County Dublin⁶;
 - Environmental information/data for the area available from the EPA website www.epa.ie;
 - Information on the status of EU protected habitats and species in Ireland⁷;

³ As defined in the *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2018)

⁴ The following SAC and SPA GIS boundary datasets are the most recently available at the time of writing: SAC_ITM_2019_12 and SPA_ITM_2019_12.

⁵ Article 17 of the EU Directive on the Conservation of habitats, Floras and Fauna (Habitats Directive) requires that all member states report to the European Commission every six years on the status and on the implementation of the measures taken under the Habitats Directive. In a similar manner, there is an obligation to report on the status and trends of bird species required under Article 12 of the Bird's Directive .

⁶ Doogue, D., Nash, D., Parnell, J., Reynolds, S. & Wyse Jackson, P. (eds) (1998) *Flora of County Dublin*. The Dublin Naturalists' Field Club, Dublin

⁷ NPWS (2019). *The Status of EU Protected Habitats and Species in Ireland*. Volume 1: Summary Overview. Unpublished NPWS report.

- Information on light-bellied Brent goose inland feeding sites⁸;
- The results of ecological surveys undertaken as part of the Environmental Impact Assessment (EIA) studies for the Proposed Scheme (see Section 5 below for details);
- Information on the location, nature and design of the Proposed Scheme; and,
- Bus Connects Drone Imagery, surveyed 2020.

2.4 Consultations

12 Table 1 outlines the Appropriate Assessment issues raised during consultation.

Table 1 Appropriate Assessment issues raised during consultation

Consultee	Phase / Date of Consultation	Issues Raised	Relevant Section of the AA where this is addressed
<p><i>Department of Housing, Local Government and Heritage</i></p> <p>(formerly Department of Culture, Heritage and the Gaeltacht)</p>	<p>30 July 2019</p> <p>Ref. G Pre00165/2019</p>	<p>The Department recommend identification, description, and assessment of direct and indirect impacts of the Proposed Scheme on the following features:</p> <ul style="list-style-type: none"> • Biodiversity in general and with specific attention to Natura 2000 sites. • Habitats and species protected under the Habitats Directive, such as Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur), bird species protected under the Birds Directive, such as Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur). • species and / or habitats listed in the Habitats Directive inside or outside of Natura 2000 sites be recorded. • Species protected under the Wildlife Act, including protected flora. • Important bird areas such as those identified by Birdwatch Ireland. • Features of the landscape which are of major importance as biodiversity corridors to wild flora or fauna, as referenced in Article 10 of the Habitats Directive. 	Addressed in NIS
		<p>Detailed bird surveys should be undertaken at all times of the year to establish areas of the Proposed Scheme used by birds should be included in the AA.</p>	Addressed in NIS
		<p>The Department requires that the Appropriate Assessment addresses the issue of invasive alien plant and animal species and include detailed methods to ensure accidental introduction or spreading does not occur. The</p>	Addressed in NIS

⁸ Scott Cawley Ltd. (2017). *Natura Impact Statement – Information for Stage 2 Appropriate Assessment for the Proposed Residential Development St. Paul’s College, Sybill Hill, Raheny, Dublin 5.*

		Department recommended that an Invasive Species Action Plan should form part of the planning application.	
		Department recommended that the Cumulative impacts of the Proposed Scheme be considered, to include interaction between different and / or approved plans and projects in the same area as the Proposed Scheme.	Addressed in NIS
		<p>The Department recommended that the Proposed Scheme be subject to Appropriate Assessment in respect of potential to impact Natura 2000 sites either alone or in combination with other plans or projects, and must contain complete (contain no lacunae), precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned.</p> <p>To assess mitigations, the following tasks must be completed:</p> <ul style="list-style-type: none"> List each of the measures to be introduced (e.g., noise bunds, tree planting). Explain how the measures will avoid the adverse impacts on the site. Explain how the measures will reduce the adverse impacts on the site. <p>Then, for each of the listed mitigation measures:</p> <ul style="list-style-type: none"> Provide evidence of how they will be secured and implemented and by whom. Provide evidence of the degree of confidence in their likely success. Provide a timescale, relative to the project or plan, when they will be implemented. <p>Where residual impacts remain, further mitigation measures may be required:</p> <ul style="list-style-type: none"> Evidence should be provided of how mitigation measures will be monitored. Monitoring should take place immediately down-stream of the Proposed Scheme. The applicant should not use any proposed post construction monitoring as mitigation to supplement inadequate information in the assessment. 	Addressed in NIS
Peter Foss Consultant Ecologist	16 April 2021 (By telephone)	<p>Topics discussed included:</p> <ul style="list-style-type: none"> Based on target mapping at various locations and observation of 2009 NPWS, Annex I habitats broadly similar distribution Distribution of Borrer's saltmarsh grass not confirmed owing to date of surveys. Second visit was postponed by author owing to pandemic restrictions. <ul style="list-style-type: none"> Scattered clumps of Third schedule non-native Common Cordgrass <i>Spartina anglica</i> noted in north east corner of marsh. 	Addressed in NIS

2.5 Baseline Surveys

- 13 Baseline ecological surveys were undertaken as necessary to inform environmental assessments of the Proposed Scheme. This section describes those ecological surveys which are relevant to and have informed the assessment of likely significant effects on European sites.

2.5.1 Habitats and Flora Survey

- 14 Habitat surveys were carried out by Scott Cawley Ltd. between June and August 2018 along the then Proposed Scheme alignment (See Figure 1). Confirmatory surveys were subsequently undertaken on the Proposed Scheme again in August and October 2020 to check and update the presence and extent of habitats found in the 2018 habitat surveys. Additional habitat surveys were carried out along any new route sections added since 2018. All habitats located within or immediately adjacent to the Proposed Scheme footprint were surveyed and mapped to level three of the Heritage Council's habitat codes, after Fossitt⁹ and in accordance with *Best Practice Guidance for Habitat Survey and Mapping*¹⁰. The level of field data quality was also recorded. Plant species present that were either representative of a habitat or considered to be of conservation interest (i.e., those listed on the Flora Protection Order or listed in the 'threatened' category or higher on the Red List for vascular plants and bryophytes) were recorded, along with their relative abundances. Non-native invasive plant species listed on the Third Schedule of the (Birds and Natural Habitats) Regulations were also recorded. The habitat's extent was mapped onto an aerial photograph, with GPS points taken where a habitat's extent could not be clearly identified from the aerial photograph. Vascular plant nomenclature follows that of the *New Flora of the British Isles 4th Edition*¹¹.
- 15 A desk study was carried out to identify all hydrological crossing points within the footprint of the Proposed Scheme. Construction methodologies do not involve in-stream works, modifications to banks or significant disturbance as a result of the Proposed Scheme. The desk study identified no sites where water bodies may be subject to significant disturbance as a consequence of the Proposed Scheme. As such, instream aquatic habitat surveys were not deemed necessary.

2.5.2 Fauna Surveys

- 16 Ecological surveys relevant to the Proposed Scheme include habitat surveys, surveys for the presence or signs of terrestrial, mobile Annex II species (i.e. otter *Lutra lutra*), and surveys for Special Conservation Interest bird species. Dedicated fisheries or aquatic surveys were not deemed to be required for this assessment as the Proposed Scheme is not hydrologically connected to any European site designated for Annex II fish species or white-clawed crayfish *Austropotamobius pallipes*. The nearest known European site designated for Atlantic salmon *Salmo salar*, river lamprey *Lampetra fluviatilis* and brook lamprey *L. planeri* is the River Boyne and River Blackwater SAC, located approximately 30km north-west of the Proposed Scheme in the Boyne River catchment. The nearest known European site designated for white-clawed crayfish is the River Barrow and River Nore SAC, which is located approximately 44km south-west of the Proposed Scheme in the River Barrow catchment, River Nore catchment and River Ballyteigue-Bannow river catchment.

2.5.2.1 Terrestrial Mammals (excluding Bats)

- 17 The footprint of the Proposed Scheme and suitable lands (e.g. greenfield sites) immediately adjacent were surveyed for otter activity as part of the multi-disciplinary walkover survey, undertaken between June and August 2018, and in August 2020, as well as follow on survey (February 2021) up and downstream of watercourse crossings for which evidence of otter activity was known. The presence/absence of these

⁹ Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. Heritage Council, Kilkenny.

¹⁰ Smith, G.F., O'Donoghue, P., O'Hara, K. & Delaney, E. (2011) *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council Church Lane, Kilkenny, Ireland

¹¹ Stace, C. (2019) *New Flora of the British Isles. 4th Edition*. C&M Floristics

species was surveyed through the detection of field signs such as tracks, markings, feeding signs, and droppings as well as by direct observation. In addition, the study area was surveyed for the presence of otter holts. Where present, any evidence of use was recorded.

- 18 A desk study was carried out to identify all hydrological crossing points within the footprint of the Proposed Scheme. However, no instream works are proposed and the desk study identified no sites where water bodies may be subject to significant disturbance as a consequence of the Proposed Scheme. As such, separate otter suitability surveys were not deemed necessary.

2.5.2.2 Kingfisher

- 19 A desk study was carried out to identify all hydrological crossing points within the footprint of the Proposed Scheme. Construction methodologies which involved in-stream works, modifications to banks or significant disturbance were deemed to require habitat suitability assessments for nesting kingfisher *Alcedo atthis*. However, no instream works are proposed and the desk study identified no sites where water bodies may be subject to significant disturbance as a consequence of the Proposed Scheme. As such, kingfisher habitat suitability assessment surveys were not deemed necessary.

2.5.2.3 Other Birds

- 20 The results of the desk study have informed the assessment of likely significant effects on breeding bird species arising from the Proposed Scheme.
- 21 A desk study was carried out to identify any potential suitable inland feeding and/or roosting sites for winter birds located within or directly adjacent to the Proposed Scheme. This included a review of recent aerial photography and known inland feeding sites for the SCI bird species light-bellied Brent goose *Branta bernicla hrota*⁸ (Scott Cawley Ltd., 2017). A habitat suitability assessment was carried out in October 2020 to verify the suitability of potential inland feeding/roosting sites identified during the desk study.
- 22 There are suitable wintering bird sites which would be subject to habitat loss, or disturbance at the very least by the Proposed Scheme. Field survey was carried out to confirm the suitability or presence of wintering birds at Booterstown Nature Reserve (referred to as CBC14154WB001) and at Blackrock Park (referred to as CBC1415WB002); which was deemed suitable for wintering birds and was surveyed twice a month, between the months February and March 2020 and again between October 2020 to March 2021. The results of the desk study and field surveys have informed the assessment of likely significant effects on wintering bird species arising from the Proposed Scheme.
- 23 In general, the approach was a 'look-see' methodology (based on Gilbert *et al.* 1998). All birds present within a site were identified with reference to *Collins Bird Guide* (Svensson, 2009) to confirm identification (where necessary), and were recorded using the British Trust for Ornithology (BTO) species codes. The total flock size of birds present, their general location within the site and any activity exhibited were also recorded. Evidence of bird droppings were recorded at pre-defined transect lines. The length of the transect line varied per site. Transect lines were only completed at sites where no bird species were present, to avoid any potential disturbance.

3 Provision of Information for Screening for Appropriate Assessment

- 24 The following sections provide information to facilitate the Appropriate Assessment screening of the Proposed Scheme to be undertaken by the competent authority.
- 25 A description of the Proposed Scheme and the receiving environment is provided to identify the potential ecological impacts. The environmental baseline conditions are described, as relevant to the assessment of ecological impacts where they may highlight potential pathways for impacts associated with the Proposed Scheme to affect the receiving ecological environment (e.g. air quality, geological, hydrogeological and hydrological data etc.).
- 26 The potential impacts are examined in order to define the potential zone of influence of the Proposed Scheme on the receiving environment. This then informs the assessment of whether the Proposed Scheme

has the potential for significant effects on any European sites; i.e. affect the conservation objectives supporting the favourable conservation condition of the European sites' QIs or SCIs.

3.1 Description of the Proposed Scheme

- 27 The following sections provide information to facilitate the Appropriate Assessment of the Proposed Scheme to be undertaken by the competent authority.
- 28 A description of the Proposed Scheme and the receiving environment is provided to identify the potential ecological impacts. The environmental baseline conditions are discussed, as relevant to the assessment of ecological impacts where they may highlight potential pathways for impacts associated with the Proposed Scheme to affect the receiving ecological environment (e.g., geological, hydrogeological and hydrological data etc.).
- 29 The potential impacts are examined in order to define the potential zone of influence of the Proposed Scheme on the receiving environment. This then informs the assessment of whether the Proposed Scheme will result in significant effects on any European sites; i.e., affect the conservation objectives supporting the favourable conservation condition of the European site's QIs or SCIs.

3.1 Overview

- 30 The Proposed Scheme has an overall length of approximately 8.3km and will comprised two main alignments in terms of the route it follows, from Blackrock to the City Centre and along Nutley Lane.
- 31 The Blackrock to City Centre section will commence on the R113 at Temple Hill, approximately 80m to the north of the R827 Stradbrook Road, travel along the N31 Frascati Road, the R118 Rock Road / Merrion Road / Pembroke Road, the R816 Pembroke Road / Baggot Street Upper / Baggot Street Lower, turn onto Fitzwilliam Street Lower and terminate at the junction of Mount Street Upper / Merrion Square South / Merrion Square East. The Nutley Lane section of the Proposed Scheme will commence at the tie-in with the signalised junction on the R138 Stillorgan Road on the southern end of Nutley Lane, travel along Nutley Lane and terminate at the junction with the R118 Merrion Road.
- 32 The Proposed Scheme includes an upgrade of the existing bus priority and cycle facilities. The scheme includes a substantial increase in the level of bus priority provided along the corridor, including the provision of additional lengths of bus lane resulting in improved journey time reliability. Throughout the Proposed Scheme bus stops will be enhanced to improve the overall journey experience for bus passengers and cycle facilities will be substantially improved with segregated cycle tracks provided along the links and protected junctions with enhanced signalling for cyclists provided at junctions.
- 33 Moreover, pedestrian facilities will be upgraded and additional signalised crossings are provided. In addition, public realm works will be undertaken at key locations with higher quality materials, planting and street furniture provided to enhance the pedestrians experience, an example of this can be seen between Herbert Road and Elgin Road.
- 34 The main characteristics of the Construction Phase of the Proposed Scheme that have potential for ecological impact are:
 - Site preparation and clearance;
 - Removal of existing boundaries, pavements, lighting columns, bus stops, and signage;
 - Protection and/or diversion of buried services;
 - Road widening, pavement reconstruction, and kerb improvements;
 - Reconfiguration of traffic lanes throughout;
 - Installation of new bus stops and junction / roundabout modification;
 - Property boundary reinstatement, signage replacement; relocation of and/or installation of lighting columns; and
 - Landscaping and tree planting, and reinstatement of temporary land acquisitions.

3.2 Surface Water Drainage Infrastructure

- 35 The surface water drainage system for the Proposed Scheme will discharge to three surface water receptors: Brewery Stream_010, Dublin Bay and Ringsend WwTP, which ultimately discharges to Liffey Estuary Lower, before ultimately draining to Dublin Bay. All drainage outfall discharges to surface waters represent point discharges. For the Proposed Scheme, there will be a net increase of 3,797m² in the impermeable area ultimately discharging to Dublin Bay. The drainage design principles ensure that all runoff from increases in impermeable areas will be attenuated and there will be no net increase in the surface water flow discharged to these receptors.
- 36 Sustainable Urban Drainage Systems (SuDS) solutions are summarised in Table 2.

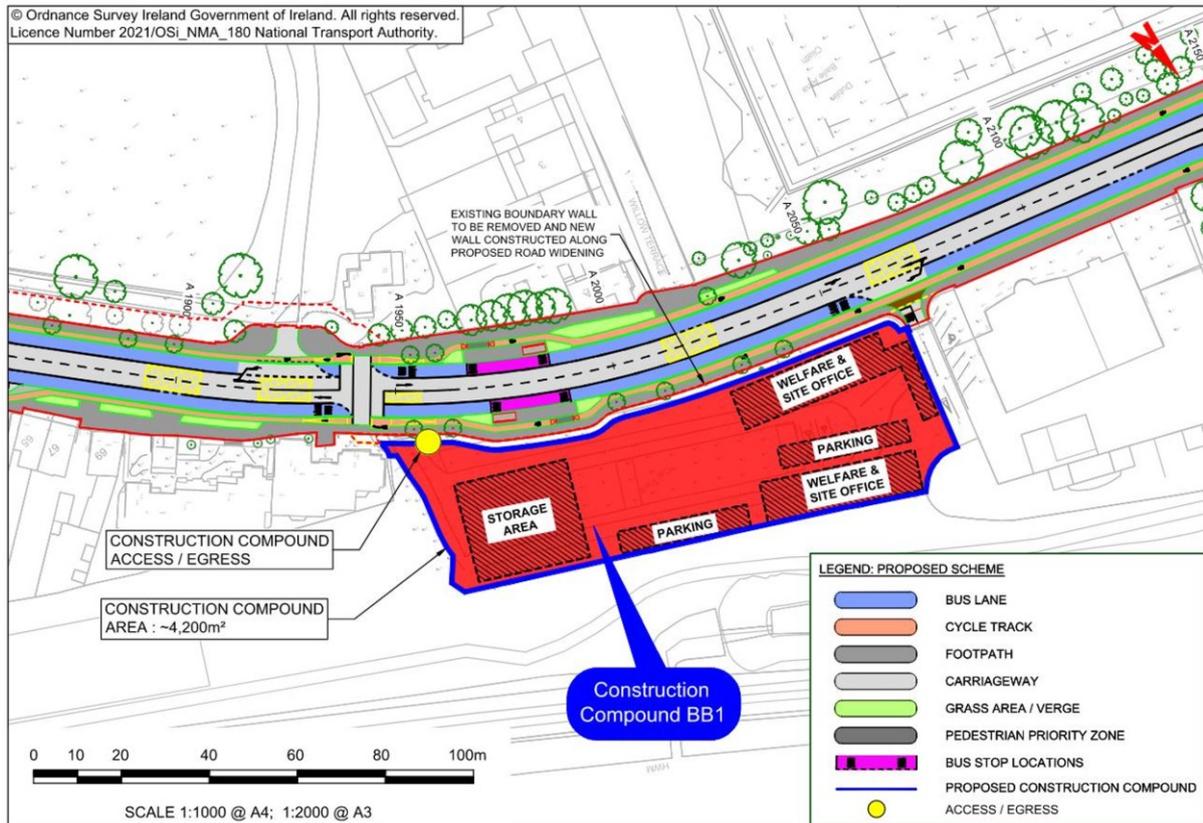
Table 2 Summary of impermeable areas and SuDS proposed by waterbody

Waterbody	Approx. Impermeable Surface Area			SuDS measures Proposed
	Existing (m ²)	Additional (m ²)	Percentage change (%)	
Brewery Stream_010	24,535	3,466	14	Filter drains, Sealed drains, Tree Pits & Oversized pipes.
Boosterstown Marsh and Nutley Stream	N/A	No change	-	N/A
Dublin Bay	N/A	No change	-	N/A
Dodder_050	N/A	No change	-	N/A
Grand Canal Main Line	N/a	No change	-	N/A
Ringsend WwTP	5,145	331	6	Filter drains, Sealed drains, Tree Pits & Oversized pipes. Bio retention/rain garden areas

3.3 Construction Compound

- 37 The Construction Compound BB1 will be located at Booterstown Car Park, within Blackrock Park, along the R118, opposite Willow Terrace for the duration of the Proposed Scheme's Construction Phase and its location is shown in Image 1.
- 38 Construction Compound BB1 will be the Construction Compound servicing the Proposed Scheme. This Construction Compound will be used to store materials, plant and equipment, to manage the activities from and to provide welfare facilities for construction personnel.
- 39 The Construction Compound will be in place for the duration of the Construction Phase of the Proposed Scheme. The compound will be dismantled and the site returned to its existing condition on completion of the Construction Phase.

Image 1 Location, Extent and Layout of Construction Compound BB1 (Image from EIAR Chapter 5 Construction – report BCIDE-JAC-ENV_UC-1415_XX_00-RP-ES-0005)



3.4 Estimated Construction Phase Duration

40 The duration of the Construction Phase is estimated to be 24 months.

3.5 Operational Phase

41 The main characteristics of the Operational Phase of the Proposed Scheme that have potential for likely significant effects on European sites and their QI/SCI include:

- The presence and operation (traffic) of the road;
- The presence of additional lighting; and
- Routine maintenance.

3.6 Overview of the Receiving Environment

3.6.1 European sites

42 The Proposed Scheme runs immediately alongside two single European sites, namely South Dublin Bay SAC at the Merrion Gates and South Dublin Bay and River Tolka Estuary SPA at Booterstown Marsh.

43 The Proposed Scheme is hydrologically connected to South Dublin Bay and River Tolka Estuary SPA as well as South Dublin Bay SAC, which has four connection points, the nearest of which is located directly adjacent to the proposed crossing point on the Booterstown stream.

44 There are eight European sites located in Dublin Bay which are downstream of the Proposed Scheme. These sites include South Dublin Bay SAC, North Dublin Bay SAC, Howth Head SAC, Rockabill to Dalkey Island SAC, Dalkey Islands SPA, Howth Head Coast SPA, North Bull Island SPA and South Dublin Bay and River Tolka SPA. European sites will be hydrologically connected to the Proposed Scheme via the Dodder_050, Grand

Canal, the Liffey Estuary Lower, the Brewery Stream_010, and Booterstown Marsh and Nutley Stream. In addition, Wicklow Mountains SAC is located upstream of the Proposed Scheme and will be hydrologically connected to the Proposed Scheme via the Dodder_050.

- 45 There are nine SPAs designated for SCI species that are known to forage and/or roost at inland sites across Dublin City and/or utilise Dublin Bay. These include South Dublin Bay and River Tolka SPA, North Bull Island SPA, Dalkey Islands SPA, Baldoyle Bay SPA, Rogerstown Estuary SPA, Skerries Islands SPA, Rockabill SPA, Ireland's Eye SPA, Howth Head Coast SPA, Lambay Island SPA, Malahide Estuary SPA, and The Murrough SPA.
- 46 In addition, Rockabill to Dalkey Island SAC and Lambay Island SAC are designated for mobile QI species known to utilise the Dublin Bay and the Liffey Estuary Lower.
- 47 All of the European sites present in the vicinity of the Proposed Scheme are shown on Figure 1 at the end of this report. The QIs/SCIs of the European sites in the vicinity of the Proposed Scheme are provided in Appendix I.

3.6.2 Habitats

- 48 The Proposed Scheme is located in a highly urbanised environment, which in places is routed along the coastal corridor parallel to South Dublin Bay. Habitats present in the footprint of the Proposed Scheme include the following:
- Flower beds and borders (BC4);
 - Stone walls and other stonework (BL1);
 - Buildings and artificial surfaces (BL3);
 - Exposed sand, gravel or till (ED1);
 - Recolonising bare ground (ED3);
 - Other artificial lakes and ponds (FL8);
 - Depositing lowland rivers (FW2);
 - Canals (FW3);
 - Amenity Grassland (Improved) (GA2);
 - Residential;
 - (Mixed) broadleaved woodland (WD1);
 - Scattered trees and parkland (WD5);
 - Hedgerows (WL1);
 - Treelines (WL2);
 - Scrub (WS1); and
 - Ornamental/ non-native shrub (WS3).

- 49 None of these habitats corresponds to Annex I or Qualifying Interest habitats. However, Booterstown Marsh, which runs along the Proposed Scheme boundary, is documented as supporting a number of coastal Annex I habitats within the marshes' wetland complex. A survey of habitats within Booterstown Marsh was not undertaken. A description of the habitats based on published historical survey data undertaken for NPWS (McCorry and Ryle, 2009) is included separately below.

3.6.3 Booterstown Marsh

- 50 The Proposed Scheme runs alongside Booterstown Nature Reserve, which is also designated as a pNHA, while the Marsh is also a subsite of South Dublin Bay and River Tolka Estuary SPA. The overall wetland

complex of the marsh is an important bird resource including wintering SCI species associated with the South Dublin Bay and River Tolka Estuary SPA.

- 51 Given the proximity of the Proposed Scheme to the marsh and links to known Annex I habitats present therein, the following habitat description is provided owing to the conservation importance of the site. The data used in characterizing the marsh is based on historical NPWS data adapted from McCorry & Ryle (2009). A recent survey of the marsh commissioned by An Taisce has not yet been published. However, An Taisce consented for the NTA to communicate with the reporting author, who noted that the distribution of Annex I habitats that was observed was similar in extent as the survey mapping from 2009.

3.6.3.1 Lower saltmarsh (CM1)

- 52 A desk study of habitats adjacent to the Proposed Scheme identified small pockets of lower salt marsh at Booterstown Nature Reserve (McCorry and Ryle, 2009). This habitat is approximately 16m east of the Proposed Scheme, totalled c. 120m². Based on analysis of the NPWS (2019b) data, the lower saltmarsh is buffered by approximately 15m of scrub and linear habitats, recorded in 2020 survey season, exists along the elevated landward side of the marsh. Based on a desk study of available data, parts of this lower saltmarsh complex has links to a number of Annex I habitats), (McCorry and Ryle 2009, NPWS 2019b).
- 53 McCorry and Ryle (2009) recorded saltmarsh communities with potential links to Annex I habitats around the marsh. The annual *Salicornia* and other annuals colonising mud and sand (1310) habitat was recorded at low densities on the margins of exposed mud flats and was comprised of small clumps of glasswort *Salicornia* spp., with the occasional presence of annual sea-blite *Suaeda maritima* and sea purslane *Atriplex portulacoides*. Additional plant species were recorded in low numbers at transitional zones with upper salt marsh habitat and included, creeping bent *Agrostis stolonifera* and sea beet *Beta vulgaris* subsp. *maritima*. This habitat is a Qualifying Interest habitat of the adjacent South Dublin Bay SAC.
- 54 The distribution of this habitat at Booterstown Marsh overlaps with the favourable reference range of this Annex I habitat as presented in 'The Status of EU Protected Habitats and Species in Ireland Article 17' report and is of National Ecological Importance (NPWS, 2019b).
- 55 Owing to classification difference between Fossitt system and the EU Interpretation Manual (EU 2013), it is noted that the lower saltmarsh habitat also included elements of upper saltmarsh, in terms of Annexed habitats. These are discussed below.

3.6.3.2 Upper saltmarsh (CM2)

- 56 A desk study of habitats adjacent to the Proposed Scheme identified linear strips of upper salt marsh, often discontinuous in nature owing to the presence of brackish marsh vegetation dominated by sea club-rush *Schoenoplectus maritimus* (McCorry and Ryle 2009). The habitat is located between 10m to 16m east of the Proposed Scheme with a total area estimated at being approximately 0.8ha. A buffer of approximately 10m of scrub and linear habitats such as treelines and hedgerows were recorded in 2020 survey season between the Proposed Scheme and the upper saltmarsh habitats identified in the NPWS data (NPWS 2019b). Based on a desk study of available data, this habitat corresponds to both Annex I habitats such as Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (1330) or Mediterranean salt meadows (*Juncetalia maritimi*) (1410), where Mediterranean sea rush *Juncus maritimus* was recorded (McCorry and Ryle 2009, NPWS 2019b).
- 57 The Annex I Atlantic salt meadows (1330) habitat was noted as comprising 50% of the lower saltmarsh habitat with species such as sea purslane *Sesuvium portulacastrum*, sea aster *Aster tripolium*, common saltmarsh-grass *Puccinellia maritima*, glasswort, sea mayweed *Tripleurospermum maritimum*, greater sea spurrey *Spergularia media*, spear-leaved orache *Atriplex prostrata*, lax-flowered sea lavender *Limonium humile*, rock sea lavender *Limonium binervosum* and sea plantain *Plantago maritima*. Sea club-rush was also present but at low densities.
- 58 Mediterranean salt meadows (1410) was also identified in low densities, being distinguished solely during the 2009 survey on the presence of sea rush. However, this habitat was noted as being very poorly developed and there was no significant development of a distinctive vegetation type. Other species that

were associated with the Mediterranean salt marsh included sea aster, greater sea-spurrey, sea arrowgrass *Triglochin maritima* and glasswort. Borrer's saltmarsh grass *Puccinellia fasciculata*, which is listed in the Flora (Protection) Order, was also recorded in low densities along the transition of the open muds and Brackish marsh e.g., to the landward side of the marsh proper.

- 59 Additional plant species were recorded at transitional zone with lower saltmarsh habitat and included creeping bent and sea beet which were recorded in low numbers. Both of these Annex I saltmarsh habitats are qualifying interest habitats for North Dublin Bay SAC, which is within the Zol of the Proposed Scheme.
- 60 This habitat type is of National Ecological Importance (Higher Value) as it corresponds with Annex I habitats Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (1330) and Mediterranean salt meadows (*Juncetalia maritimi*) (1410).

3.6.3.3 Mud sand shores (LS4)

- 61 Based on a desk top study, this habitat was identified at one location adjacent to the Proposed Scheme (McCorry and Ryle, 2009). A large part of Booterstown Nature Reserve comprises soft mud and sand associated intertidal habitats prone to periodic inundation by sea water.
- 62 Few plant species were recorded by McCorry and Ryle (2009), though the peripheral mud sand shores can be associated with lower saltmarsh habitats as pioneer species form colonies. Glassworts can act as pioneer species for saltmarsh formation and was recorded at adjacent habitats.
- 63 Mud sand shore habitats at Booterstown Nature Reserve may be linked to Annex I 'mudflats and sandflats not covered by sea water at low tide (1140)' habitats.

3.6.4 Flora and Fauna Species

- 64 No records of any Annex II plant species were recorded within the footprint of the Proposed Scheme during field surveys.
- 65 There was one non-native invasive plant species, three-cornered garlic *Allium triquetrum*, listed on the Third Schedule of the Birds and Habitats Regulations which was identified along the Proposed Scheme, near the north-western corner of Booterstown Marsh.
- 66 The desk study returned records of a total of 20 species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations within 1km of the Proposed Scheme. These records include aquatic species associated with the Grand Canal and River Dodder water fern *Azolla filiculoides*, curly waterweed *Lagarosiphon major* and Nuttall's waterweed *Elodea nuttallii* which were recorded at various sites along the River Liffey and Grand Canal. There are also records of Himalayan balsam *Impatiens glandulifera* and Japanese knotweed *Reynoutria japonica* along the Dodder in multiple locations, as well as localised records of giant rhubarb *Gunnera tinctoria*. There is also stand of Japanese knotweed along the Grand canal. A single old record of giant hogweed *Heracleum mantegazzianum* is noted at Blackrock College. The majority of the other records returned from the NBDC online database are from further afield and are not considered to be within the Zol of the Proposed Scheme. These species were not present within the footprint of the Proposed Scheme. Common cordgrass *Spartina anglica* is known to be locally present on exposed muds within the saline parts of Booterstown Marsh.

3.6.4.1 Otter

- 67 A desk study found that otter is known to occur at a number of areas adjacent to the Proposed Scheme. The areas include the Grand Canal Dock which is hydrologically connected to the Proposed Scheme via drainage system and a crossing of the Proposed Scheme at McCartney Bridge; as well as the River Dodder at Herbert Park (up and downstream) and at Donnybrook. The Proposed Scheme cross the Dodder River across the existing road bridge at Ballsbridge. Another record from Monkstown at grid reference O2262929, possibly refers to the coastal area north-east of the Proposed Scheme.

- 68 A recent dedicated otter survey¹² recorded otter activity around the River Dodder at Ballsbridge. Two holts and several spraints were observed between Donnybrook and Milltown within 2km of the Proposed Scheme. Two holts and several spraints were observed on the River Dodder/ Slang which fell within 2km of Merrion Road. Otter signs on Merrion Strand were recorded within 1km of Proposed Scheme. In addition, three holts and several spraints were recorded approximately 6km upstream of Ballsbridge at various locations along the river between Rathfarnham and Donnybrook¹².
- 69 No signs of otter, an Annex II species, were recorded during surveys within the footprint of the Proposed Scheme during the original multidisciplinary surveys. A follow-on survey in February 2021, at accessible locations 150m up and downstream of the Ballsbridge crossing over the River Dodder, noted a single mustelid print in exposed muds – the print could belong to otter or mink. There was no evidence of otter habitation features on the downstream side of the River Dodder at this point, although it has been heavily modified through the construction of flood relief measures. Ongoing works have remodelled the upstream side of the river crossing; the work included installation of hard flood walls along one bank which would preclude otter habitation whilst on the other side, vegetation clearance has reduced the potential for otter habitation.
- 70 The nearest European site for which this species is designated is the Wicklow Mountains SAC, which is located approximately 11.9km upstream of the Proposed Scheme. Otter territories are within the range of approximately 7.5km for females and can reach up to 21 km for males via hydrological pathways (O’Neill *et al.*, 2009). The River Dodder and Liffey Estuary provide the key pathway to Wicklow Mountains SAC, whereas the Proposed Scheme will discharge into the Tolka Estuary. Wicklow Mountains SAC is located within a different sub-catchment (Dodder_SC_010) to the Proposed Scheme (Santry 10 Mayne_SC_010). As such, populations of otter within the footprint of the Proposed Scheme are deemed not to be connected to the SAC population.

3.6.4.2 Marine mammals

- 71 The Proposed Scheme is hydrologically connected to Dublin Bay via the River Liffey and runs parallel and at times in close proximity to the southern shoreline of South Dublin Bay.
- 72 Harbour seal, grey seal, and harbour porpoise are known to be present in Dublin Bay. Both seal species are listed on Annex II of the habitats directive and harbour porpoise are listed on Annex IV of the Habitats Directive. The nearest European site for which harbour seal and grey seal have been designated is Lambay Island SAC located approximately 21.7km from the Proposed Scheme. The nearest European site for which harbour porpoise has been designated is Rockabill to Dalkey Island SAC located approximately 5.3km from the Proposed Scheme.

3.6.4.3 Invertebrates

- 73 During ecological surveys for the Proposed Scheme, a search for species and or suitable supporting habitat was made. Two species included on Annex II list of Habitats Directive, namely marsh fritillary *Euphydryas aurinia* and white-clawed crayfish were returned from the desktop review of the NBDC online database. The desk study did not return any records for white-clawed crayfish in watercourses in the ZOI of the Proposed Scheme. The nearest documented record in Dublin for the crayfish is from the Camac River around Clondalkin.
- 74 There were no records of marsh fritillary from within the footprint of the Proposed Scheme. Desk study records in the wider area were largely historical (pre-1980s). Recent records for marsh fritillary were identified approximately 5.5km north-east of the Proposed Scheme at North Bull Island in 2019 (NBDC 2020). Marsh fritillary are restricted to habitats containing a low, open sward with abundant devil’s-bit scabious *Succisa pratensis* including sand dunes, calcareous grassland, fens, raised and blanket bogs,

¹² Macklin, R., Brazier, B. & Sleeman, P. (2019). *Dublin City otter survey*. Report prepared by Triturus Environmental Ltd. for Dublin City Council as an action of the Dublin City Biodiversity Action Plan 2015- 2020.

upland heaths and grasslands. Neither devil’s-bit scabious nor these habitats were recorded within the footprint of the Proposed Scheme.

3.6.4.4 Kingfisher

- 75 A desk study found that kingfisher, an Annex I species, are known to occur within 1km of the Proposed Scheme and across the wider study area, particularly along larger, sylvan watercourse corridors. The desk study returned multiple records from Booterstown Marsh, whilst the Dodder River is another area, for which multiple records are documented. Booterstown Marsh is adjacent to the Proposed Scheme and is hydrologically connected to the scheme via the culverted Booterstown Stream. Likewise, the Proposed Scheme crosses the River Dodder and the Grand canal, although no instream works are planned.
- 76 Kingfisher were not recorded during multidisciplinary surveys within the footprint of the Proposed Scheme. However, Scott Cawley Ltd. are aware of kingfisher activity, with a potential resident breeding pair along the Nutley Stream. The stream, which is not mapped by the EPA, runs alongside the DART line and discharges into Dublin Bay at two areas, namely east of the Proposed construction compound and another tie-in with the Priory Stream at Blackrock Park. The stream is not intersected by the Proposed Scheme and its closest point to the Proposed Scheme is adjacent to the proposed Construction Compound (approximately 12m). The nearest European site for which this species is designated is River Boyne and River Blackwater SPA, which is located approximately 39.9km from the Proposed Scheme. Kingfisher populations within close proximity to the Proposed Scheme are not deemed to be SCI species.

3.6.4.5 Birds

- 77 The desk study returned records of three breeding gull species within 300m of the Proposed Scheme which may use inland amenity grassland feeding sites including black-headed gull *Chroicocephalus ridibundus*, herring gull *Larus argentatus* and lesser black-backed gull *Larus fuscus*.
- 78 The desk study returned records of a total of 44 regularly occurring wintering bird species in the wider study area (i.e., Grid Squares O13 and O14). Records included four species listed under Annex I of the Birds Directive, 36 SCI species, and an additional four amber listed species. The majority of wintering birds identified in the desk study are typically found in coastal, estuarine and intertidal habitats including the Tolka Estuary, North Bull Island transitional water body, and Dublin Bay. A desk-based review of lands within 300m of the Proposed Scheme returned records of 12 SCI wintering bird species which may use inland amenity grassland feeding sites, including light-bellied Brent goose, lapwing, curlew, oystercatcher, black-tailed godwit, herring gull, black-headed gull and lesser-black-backed gull.
- 79 A total of 17 wintering bird surveys were carried out for the Proposed Scheme at two transects, namely CBC1415WB001 (which was centred on a small area of amenity grassland near the north-western corner of Booterstown Marsh as well as derelict ground to the north of Booterstown Marsh) and Transect CBC1415WB002 which covered the expansive grassed area in Blackrock Park around the main Pond. Species identified included light bellied Brent goose and black headed gull. Numerous swan and geese droppings were also commonly sighted across the site. Table 3 provides a summary of the findings of the winter bird surveys with respect to those species which are of highest conservation concern and were recorded within winter bird survey sites.

Table 3 Wintering birds of Conservation Concern recorded at sites CBC1415WB001 and CBC1415WB002 during the wintering bird surveys

Common Name/Scientific Name/BTO Code	Site: Peak Count and Activity in the Study Area (Date)	Conservation Importance			Surveyor Observations outside of transect
		BoCCI (B – Breeding/W - Wintering)	Annex I	SCI	
Light-bellied Brent goose <i>Branta bernicla</i> (BG)	CBC1415WB002: 18 birds feeding on grass between lake and transect (16/03/2020)	Amber (W)	-	✓	9 birds swimming in lake next to transect (27/03/2020)

Common Name/Scientific Name/BTO Code	Site: Peak Count and Activity in the Study Area (Date)	Conservation Importance			Surveyor Observations outside of transect
		BoCCI (B – Breeding/W - Wintering)	Annex I	SCI	
Black-headed gull <i>Chroicocephalus ridibundus</i> (BH)	CBC1415WB002: Two birds feeding on grass between lake and transect (28/02/2020)	Amber (B/W)	-	✓	13 birds swimming in lake next to transect (21/01/2021)

- 80 Transect CBC1415WB001 captured amenity grassland area next to Booterstown Marsh (within South Dublin Bay and River Tolka Estuary SPA) and Rock Road. The site is maintained with cutting by the local authority. Disturbance within the site is moderate-high with frequent public use which is frequent. Brent geese have not been observed using this small area for feeding or resting based on no live observation or droppings within the site. However, wintering birds were sighted using Booterstown Marsh as a feeding/resting spot.
- 81 Transect CBC1415WB002 captured amenity grassland area in Blackrock Park. The grassland sward within the park is maintained with regular cutting. Disturbance is moderate on the site, the transect is between the path of the park and Rock Road, which is frequently used by walkers. Light bellied Brent geese feed on the grass areas next to the transect and are frequently sighted using the lake.
- 82 Wintering bird activity was low across all visits. Table 4 compares peak counts identified across surveys to their national and international populations.

Table 4 Wintering bird species recorded during wintering bird surveys in comparison to the 1% of its International and National Populations

Common Name/Scientific Name/BTO Code	Associated European sites within the Zol	1% of International Population	1% of National Population
Light-bellied Brent goose <i>Branta bernicla</i> (BG)	South Dublin Bay and River Tolka Estuary SPA; North Bull Island SPA; Baldoyle Bay SPA; Malahide Estuary SPA; Rogerstown Estuary SPA; Skerries Islands SPA; The Murrough SPA	400	350
Black-headed gull <i>Chroicocephalus ridibundus</i> (BH)	South Dublin Bay and River Tolka Estuary SPA; North Bull Island SPA; The Murrough SPA	31,000	n/a

- 83 A review of a study into light-bellied Brent goose inland feeding sites⁸ has identified one SPA wintering bird feeding site in the footprint of the Proposed Scheme, namely Booterstown Marsh. There are also five inland wintering bird feeding sites within approximately 300m of the Proposed Scheme i.e. the disturbance Zol¹³. The known inland wintering feedings sites, along with the relative importance to Brent Goose population as assessed in 2017 and distances from the Proposed Scheme are as follows:
- Blackrock/Blackrock Park (High importance) immediately adjacent to the Proposed Scheme;
 - Blackrock/Blackrock College (High importance) immediately adjacent to the Proposed Scheme;
 - Blackrock/Williamstown Park (High importance) immediately adjacent to the Proposed Scheme;

¹³ Major importance site 401+ geese; high importance site 51-400 geese; and, moderate importance site 1-50 geese as defined by Benson's study in 2009. - Benson (2009). *Use of Inland Feeding Sites by Light-bellied Brent Geese in Dublin 2008-2009: A New Conservation Concern?* Irish Birds 8: 563-570.

- Pembroke Cricket Club and Monkstown Rugby Club (High Importance) approximately 224m from the Proposed Scheme; and
- St. Andrews Playing Pitch (No data other than mention of droppings) approximately 253m from the Proposed Scheme.

84 A number of SPAs have been included on a precautionary basis for assessment as it cannot with certainty be confirmed that their Special Conservation Interest species do not use areas in the vicinity of the Proposed Scheme as *ex-situ* habitat.

3.6.5 Hydrology

85 The Proposed Scheme is hydrologically connected to Dublin Bay via the Dodder_050, Brewery Stream_010, Grand Canal, and Booterstown Marsh and Nutley Stream.

86 Details on the water quality of each watercourse, as sourced from the Environmental Protection Agency (EPA), and the distances from the proposed crossing point to downstream waterbodies are also provided in Table 5.

Table 5 Water quality of watercourses/waterbodies in the vicinity of the Proposed Scheme

Watercourse	Location in relation to the Proposed Scheme	EPA Q-Values (Monitoring Station) and Water Framework Directive Water Quality Status/Risk Score	Name of and Distance to Downstream Waterbodies along with their associated Water Quality
Grand Canal (CP098)	One crossing point at Baggott Street Bridge.	Q-Value Score not applicable WFD status 2013-2018 <i>"Good"</i> WFD waterbodies risk - <i>'Not at risk'</i>	It flows into the Liffey Estuary Lower transitional waterbody (classified as <i>"Unpolluted"</i>) at Grand Canal Dock, which ultimately drains to Dublin Bay (approximately 4.86km to SPA) coastal waterbody, classified as <i>"Unpolluted"</i> .
Dodder River (Dodder_050) (CP097)	One culverted crossing point over bridge at Ballsbridge. Where Merrion road merges into Pembroke Road.	Q-Value 1984 – 2-3 Poor WFD status 2013-2018 <i>"Moderate"</i> WFD waterbodies risk - <i>'at risk'</i>	It flows into the Liffey Estuary Lower transitional waterbody (classified as <i>"Unpolluted"</i>) alongside Grand Canal Dock, which ultimately drains to Dublin Bay coastal waterbody (approximately 4.86km to SPA) classified as <i>"Unpolluted"</i> .
Elm Park Stream (Brewery Stream_010) (CP095)	One crossing point under Merrion Road, north-west of petrol station.	Q-Value Score not applicable WFD status 2013-2018 <i>"Unassigned"</i> WFD waterbodies risk – None presented	If flows in a culverted under railway line before discharging to Dublin Bay Coastal Waterbody whose WFD 2013-2018 status is classified as <i>"Good"</i> , a distance of approximately 61 metres.
Boosterstown stream (Brewery Stream_010) (CP092)	One culverted crossing point under Merrion Road from Trimbleston Avenue.	Q-Value Score not applicable WFD status 2013-2018 <i>"Good"</i> WFD status <i>"Unassigned"</i> WFD waterbodies risk – None presented	It flows in an above-ground culverted chamber along northern boundary of Boosterstown marsh (the northern boundary of the SPA territory), before discharging to Dublin Bay Coastal Waterbody whose WFD 2013-2018 status is classified as <i>"Good"</i> , distance of approximately 179metres.
Priory Stream (Brewery Stream_010) (CP090)	One crossing point under Frascati Road/Rock Hill road intersection near Blackrock Park.	Q-Value Score not applicable WFD status 2013-2018 <i>"Unassigned"</i> WFD waterbodies risk – None presented	It flows aboveground, along the southern boundary of the Blackrock Park before discharging via culvert under the railway line to Dublin Bay Coastal Waterbody whose WFD 2013-2018 status is classified as <i>"Good"</i> , a distance of approximately 220metres.
Brewery Stream (Brewery Stream_010) (CP088)	One culverted crossing point under Temple Road/Frascati Road changeover.	Q-Value Score not applicable WFD status 2013-2018 <i>"Unassigned"</i> WFD waterbodies risk – None presented	It flows partially through culverts and open canalised sections to the east of Idrone Terrace to Dublin Bay Coastal Waterbody whose WFD 2013-2018 status is classified as <i>"Good"</i> , a distance of approximately 311metres.
Boosterstown Marsh and Nutley Stream	Adjacent to the Proposed Scheme Nutley Stream is a small watercourse which runs from Merrion House car park east to Boosterstown Marsh.	Q-Value Score not applicable Not classified as WFD waterbodies	The marsh is part of the South Dublin Bay and River Tolka Estuary SPA and is hydrologically connected via an outfall/inlet to the north of Boosterstown Park car park to Dublin Bay Coastal Waterbody whose WFD 2013-2018 status is classified as <i>"Good"</i>
Dublin Bay	Hydrologically connected to the Proposed Scheme via the Brewery Stream_010, Wad River, Tolka Estuary and North Bull Island transitional water bodies.	Q-value score N/A Good <i>'Not at Risk'</i>	N/A

3.6.6 Hydrogeology

- 87 The Geological Survey of Ireland (GSI) data indicates that the site is underlain The underlying aquifers are either Locally Important Bedrock Aquifer, Moderately Productive only in Local Zones or Poor Bedrock Aquifer, Moderately Productive only in Local Zones, and that the bedrock formation 1:500k in the Proposed Scheme indicates that considerable section of the proposed scheme is underlain by “marine basinal facies (Tobercolleen and Lucan formations “Calp” comprising *Dark-grey argillaceous & cherty limestone and shale*”. Further east, beyond Booterstown marsh, a small sliver of Marine shelf and ramp facies rocks are recorded comprising “*Argillaceous Dark-grey bioclastic limestone and subsidiary shale*” is mapped. The final section of the Proposed Scheme route is characterised by *Granite and Granodiorite* lithologies.
- 88 The Proposed Scheme transverses two ground waterbodies, namely Dublin waterbody and the Kilcullen waterbody. Environmental data sourced from the EPA for each of these ground waterbodies is presented below:

Dublin Groundwater Body

- The groundwater body it is ranked as being of “*Good*” Ground Waterbody WFD Status (2013-2018) and “*not at risk*” of failing the WFD groundwater quality objectives for the majority of its area;
 - The aquifers located within this ground waterbody and where the Proposed Scheme transverses are classified as “*locally important aquifer - moderately productive only in local zones*”.
- 89 The vulnerability of the Dublin ground waterbody to human activities largely ranges from “*Rock at or Near Surface*”, “*Extreme*”, “*High*”, “*Moderate*” to “*Low*” within the footprint of the Proposed Scheme.

Kilcullen Groundwater Body

- The groundwater body it is ranked as being of “*Good*” Ground Waterbody WFD Status (2013-2018) and “*not at risk*” of failing the WFD groundwater quality objectives for the majority of its area;
 - The aquifers located within this ground waterbody and where the Proposed Scheme transverses are classified as “*Poor aquifer – bedrock which is generally unproductive except for local zones*”.
- 90 The vulnerability of the Kilcullen ground waterbody to human activities ranges from “*”*”, “*Extreme*” and “*High*”, with some “*Rock at or Near Surface*” or “*Moderate*” ranking” within the footprint of the Proposed Scheme.

3.6.7 Soils & Geology

- 91 The 1:100,000 GSI bedrock geology map of the area indicates that the underlying bedrock along the Proposed Scheme is predominantly underlain by Carboniferous Limestones. The majority of the Dublin City area was a deep marine basin known as the Dublin Basin where these sedimentary rocks were deposited.
- 92 To the south of the region, stretching from Dún Laoghaire on the coast in a south to south-west direction and located beneath much of the Dublin and Wicklow Mountains, are the older Caledonian granites known as the Leinster Granite. This is a large intrusion of igneous rock which occurred during the Devonian Period mountain building event known as the Caledonian Orogeny.
- 93 Additionally, there are areas of made ground (Urban). The majority of the soils expected to be encountered within the study area are made ground comprising varying forms of hard standing materials including road pavements and footpaths. However, there are topsoil and other soils present within the study area.

3.7 Assessment of Potential Effects on European Sites

- 94 This section identifies all the potential impacts associated with the Proposed Scheme, examines whether there are any European sites within the ZoI of effects from the Proposed Scheme, and assesses whether there is any potential for the Proposed Scheme to result in a significant effect on any European site, either alone or in combination with other plans or projects.

- 95 In assessing the potential for the Proposed Scheme to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites (i.e., mitigation measures) are not taken into account as part of this Stage One Screening appraisal.
- 96 Considering on the baseline ecological environment and the extent and characteristics of the Proposed Scheme the following potential impacts have been identified:
- Habitat loss and fragmentation;
 - Habitat degradation/effects on QI/SCI species as a result of hydrological impacts;
 - Habitat degradation as a result of hydrogeological impacts;
 - Habitat degradation as a result of introducing/spreading non-native invasive species;
 - Habitat degradation as a result of air quality impacts; and
 - Disturbance and displacement impacts.

3.7.1 *Habitat loss and fragmentation*

- 97 The Proposed Scheme runs immediately alongside two single European sites, namely South Dublin Bay SAC at the Merrion Gates and South Dublin Bay and River Tolka Estuary SPA at Booterstown Marsh. The Proposed Scheme boundary overlaps the SAC and SPA boundaries by 2.7m² and 4.3m², respectively, where habitats within these areas do not currently correspond to QI habitats, and / or habitats on which QI / SCI species of nearby habitats rely on for foraging, resting / roosting and / or commuting on.
- 98 Where the SAC boundary overlaps within the application boundary areas, the area comprises of pre-existing hardstanding surfaces, which are of low ecological value and are not listed on Annex I of the Directive. With regard to the South Dublin Bay and River Tolka Estuary SPA, the area of overlap, c. 4.3m², does not contain any wetland or saltmarsh habitat for which the site is designated nor does the area of overlap represent important wetland habitat for wintering bird species, a finding that was confirmed during wintering bird surveys. The pre-existing hardstanding areas impacted, will be replaced by new road surface, i.e. equivalent habitat to what is being lost.
- 99 Therefore, although there is a small overlap with the boundaries of the South Dublin Bay SAC and the South Dublin Bay and River Tolka Estuary SPA, the Proposed Scheme boundary does not overlap with any Annex I habitats listed as a Qualifying Interest of the SAC, or habitats considered to support the SCI species of the SPAs, or have an impact on the conservation objectives of these, or any other, European sites.
- 100 The nearest European sites with a hydrological connection to the Proposed Scheme includes South Dublin Bay and River Tolka Estuary SPA and the overlapping South Dublin SAC, although the discharges are via a number of culverted streams; therefore there is potential (albeit limited) for direct habitat loss and fragmentation to occur within the SPA territory at Booterstown Marsh. Habitat loss (SPA Annex I wetland complex or Annex I saltmarsh habitats) could also occur indirectly as a consequence of habitat degradation arising from a reduction in water quality and/or a change to the hydrological regime, as described in the section below.
- 101 It also is proposed to remove some screening vegetation alongside known ex-situ feeding sites at Blackrock Park and Blackrock College, both of which are adjacent to the SPA. The full extent and nature of the vegetation removal may have an impact on both the extent of available feeding territory as well as screening vegetation – this is discussed separately in Section 6.6.
- 102 Special Conservation Interest (SCI) species for which SPAs in the vicinity of the Proposed Scheme have been designated are known to utilise *ex situ* feeding sites in the Dublin area (i.e. Malahide Estuary SPA, Baldoyle Bay SPA, North Bull Island SPA, South Dublin Bay and River Tolka SPA, Rogerstown Estuary SPA, Skerries Islands SPA, Ireland's Eye SPA, Lambay Island SPA, Dalkey Islands SPA and potentially The Murrrough SPA). The Proposed Scheme will not result in the loss of sites suitable to support breeding gull and wintering bird species.

- 103 A number of potential inland feeding sites within the footprint of the Proposed Scheme were surveyed to inform this assessment, these were located at lands adjacent to Booterstown Marsh referred to as CBC1415WB001, and at Blackrock Park referred to as CBC1415WB002. Of these, Blackrock Park was found to support SCI species. The Proposed Scheme will result in the permanent loss of sites suitable to support breeding gull and wintering bird species at Blackrock Park (referred to as CBC1415WB002).
- 104 Therefore, there is potential (albeit limited) for impacts on SCI species associated with SPAs to occur as a result of habitat loss/fragmentation. Therefore, there is potential for in combination effects to occur.
- 105 With the exception of otter, Annex I habitats and Annex II species for which European sites are designated for within the Zol of the Proposed Scheme will not result in any direct loss or fragmentation of habitat by virtue of the location of the Proposed Scheme and its construction. In terms of otter, while the Proposed Scheme does cross the Dodder River and the Grand Canal, it does so at existing transport bridges and as such will not be subject to any instream works nor alteration to the territory currently occupied by otter.

3.7.2 Habitat degradation/effects on QI/SCI species as a result of hydrological impacts

- 106 The Proposed Scheme is hydrologically connected to Dublin Bay via the Dodder_050, Brewery Stream_010, Grand Canal, and Booterstown marsh and Nutley Stream as well as a network of interconnecting and established surface or combined sewer/surface water pipes. The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction, or operation, has the potential to affect water quality in the receiving aquatic environment. It should be noted that a highly substantial event/events would be required to generate such quantities, which is not deemed likely. Such a potential pollution event may include: the release of sediment into receiving waters and the subsequent increase in mobilised suspended solids; and the accidental spillage and/or leaks of contaminants into receiving waters. This occurrence could happen at any time during construction but could potentially be exacerbated by the removal of vegetation. In the absence of mitigation, the associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the discharge point or location of the accidental pollution event. Such an occurrence, of a sufficient magnitude, either alone or in combination with other pressures on water quality, could undermine the conservation objectives of the European sites downstream in Dublin Bay (i.e. North Dublin Bay SAC, South Dublin Bay SAC, Howth Head SAC, Rockabill to Dalkey Island SAC, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA and Dalkey Islands SPA).
- 107 The Proposed Scheme is hydrologically connected to the River Dodder, via the drainage network as well as crossing it directly at Ballsbridge. The source of the River Dodder is in the Wicklow Mountains SAC which is located approximately 11.9km south (upstream). Otter territories are within the range of 7.5km for females and 21km for males (Ó'Neill *et al.*, 2009). Therefore, there is potential for otter associated with the Wicklow Mountains SAC to move downstream and to come within the Zol of the Proposed Scheme. The remaining QIs for the SAC, namely Oligotrophic water containing very few minerals of sandy plains (*Littorelletalia*); Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoteo-Nanojuncetea*; Natural dystrophic lakes and ponds; Northern Atlantic wet heaths with *Erica tetralix*; European dry heaths; Alpine and Boreal heaths; *Calaminarina* grasslands of the *Violetalia calaminariae*; Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)*; Blanket Bogs (*if active bog); Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*); Calcareous rocky slopes with chasmophytic vegetation; and Old sessile oak Woods with *Ilex* and *Blechnum* in the British Isles do not occur within the Zol of the Proposed Scheme. These habitats are located upstream of the Proposed Scheme and will not be subject to any hydrological impacts as a result of the Proposed Scheme.
- 108 A reduction in water quality as a result of an accidental pollution event (either alone or in combination with other pressures on water quality) however could result in the degradation of the local aquatic environment, which could in turn negatively affect the otter population through direct contact with pollutants or a decline in fish prey.
- 109 In a potential worst case scenario, the release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction, or operation, also has the

potential to affect SCI bird species and QI mammal species that commute, forage and loaf in Booterstown Marsh and Dublin Bay i.e. birds associated with Skerries Islands SPA, Rockabill SPA and Lambay Island SPA, Ireland's Eye SPA, North Dublin Bay SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, Malahide Estuary SPA, Rogerstown SPA, Dalkey Islands SPA, Murrough SPA, and marine mammals associated with Rockabill to Dalkey Island SAC and Lambay Island SAC. This reduction in water quality (either alone or in combination with other pressures on water quality) could result in the degradation of sensitive habitats present downstream, which in turn could negatively affect the SCI bird species that rely upon these habitats as foraging and/or roosting habitat. It could also negatively affect the quantity and quality of prey available to SCI and QI populations. In a worst-case scenario these potential impacts could occur to such a degree that the conservation objectives of the Skerries Islands SPA, Rockabill SPA and Lambay Island SPA, Ireland's Eye SPA, North Dublin Bay SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, Malahide Estuary SPA, Rogerstown SPA, Dalkey Islands SPA, Murrough SPA, Rockabill to Dalkey Island SAC and Lambay Island SAC are undermined.

- 110 As the Proposed Scheme has the potential to result in habitat degradation and effects on the qualifying/special conservation interest species of European sites as the result of hydrological impacts, there is the potential for in combination effects to occur.

3.7.3 *Habitat degradation as a result of hydrogeological impacts*

- 111 Groundwater levels in groundwater dependant habitats may be impacted by the removal of a proportion of an aquifer or dewatering activities associated with excavations which can lead to a temporary change in groundwater levels and flow within the aquifer. Likewise, the mobilisation of contaminants into the aquifer either through accidental spillage or disturbance of contaminated ground during excavation may reduce the quality of the groundwater within the aquifer, also resulting in the degradation of groundwater dependent terrestrial ecosystem and any species that they may support.
- 112 The potential for hydrogeological impacts are highly variable depending on the nature of the proposed works at specific locations and the receiving environment ground conditions. The unmitigated hydrogeological Zol of the Proposed Scheme is not considered to extend to any groundwater dependent terrestrial ecosystems linked to European sites. However it may extend into Booterstown Marsh wetland habitat, which is a constituent element of South Dublin Bay and River Tolka Estuary SPA. This Zol follows the professional judgement of the hydrogeology specialists.
- 113 As the Proposed Scheme has the potential to result in habitat degradation of the qualifying interest species/special conservation interest supporting habitat of a European site as the result of hydrogeological impacts there is potential for in combination effects to occur in that regard.

3.7.4 *Habitat degradation as a result of introducing/spreading non-native invasive species*

- 114 A single area of three-cornered garlic, a species listed on the Third Schedule of the (Birds and Natural Habitats) Regulations present within, or in close proximity to, the Proposed Scheme. A second non-native species common cordgrass *Spartina anglica* is known to be locally present on exposed muds within the saline parts of Booterstown marsh. This coastal species, often associated with saltmarsh habitats is outside the footprint of the Proposed Scheme. In the absence of mitigation, there is potential for this to spread or be introduced, during construction and/or routine maintenance/management works, to terrestrial and habitat areas in European sites downstream in Dublin Bay (i.e., North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island SPA and South Dublin Bay and River Tolka Estuary SPA). These in turn may result in the degradation of the existing habitats and therefore undermine the conservation objectives of these European sites.
- 115 It is not considered possible that the listed invasive species could spread to European sites that are located a considerable distance downstream of the Proposed Scheme at a number of outfall locations. In terms of the extent and nature of the three-cornered garlic, it is a terrestrial species of shady banks and managed verges and is unlikely to become established in SPA wetland areas nor in coastal SAC habitats. It could potentially spread within the edges of the adjacent SPA albeit along non-wetland boundary vegetation.

- 116 Common cordgrass, lies outside of but adjacent to the Proposed Scheme Red Line Boundary. It will not be directly impacted by the Proposed Scheme by virtue of its location, and avoidance of works within Booterstown Marsh. Indirect impacts could arise in the case where water draining off the Proposed Scheme during construction and of such a magnitude that it resulted in seed dispersal into other areas of bare saline mudflats or into Annex I coastal habitats.
- 117 As the Proposed Scheme has the potential to result in habitat degradation of the qualifying/special conservation interest species of European sites as the result of the spread of invasive species, there is the potential for in combination effects to occur in association with other activities/plans/projects.

3.7.5 *Habitat degradation as a result of air quality impacts*

- 118 A reduction in air quality within the immediate vicinity of the construction works may occur as a consequence of dust deposition associated with these construction activities. This includes reduction in photosynthesis due to smothering from dust on the plants and chemical changes such as acidity to soils. Furthermore, emissions from car exhausts, and the deposition of particulate matter and heavy metals produced by engine, brake and tyre wear, can contribute to increased deposition of pollutants such as oxides of nitrogen (NO_x, NOs), volatile organic compounds (VOCs), particulate matter (PM), heavy metals (HM) and ammonia (NH₄) in the vicinity of a road carriageway. This can affect the ecosystems and vegetation present, influencing plant growth rates and species composition, diversity, and abundance.
- 119 The unmitigated Zol for air quality effects arising from the Proposed Scheme has the potential to extend 50m from the Proposed Scheme boundary, and 500m from Construction Compound during the Construction Phase, and up to 200m from the Proposed Scheme boundary during the Operational Phase. European sites present within these distances include South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC.
- 120 A change in AADT (Annual Average Daily Traffic) flows greater than 1,000 is predicted to occur on Rock Road. This lies adjacent to South Dublin Bay SAC and South Dublin Bay and River Tolka Estuary SPA. As such the Proposed Scheme has the potential to result in habitat degradation of the qualifying / special conservation interest species / habitats of South Dublin Bay SAC and South Dublin Bay and River Tolka Estuary SPA during the Operational Phase of the Proposed Scheme.

3.7.6 *Disturbance and displacement impacts*

- 121 A temporary and/or permanent increase in noise, vibration and/or human activity levels during the Construction Phase of the Proposed Scheme could result in the disturbance to and/or displacement of fauna species present within the vicinity of the Proposed Scheme. For mammal species such as otter, disturbance effects would not be expected to extend beyond 250m¹⁴. For wintering birds, disturbance effects would not be expected to extend beyond a distance of approximately 300m¹⁵, as noise levels associated with general construction activities would attenuate to close to background levels at that distance. South Dublin Bay and River Tolka Estuary SPA is within the disturbance Zol of the Proposed Scheme.

¹⁴ This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes) documents. This is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual Zol of construction related disturbance likely to be much less in reality.

¹⁵ Current understanding of construction related noise disturbance to wintering waterbirds is based on the research presented in Cutts *et al.* (2009) and Wright *et al.* (2010). In terms of construction noise, levels below 50dB would not be expected to result in any response from foraging or roosting birds. Noise levels between 50dB and 70dB would provoke a moderate effect/level of response from birds, i.e. birds becoming alert and some behavioural changes (e.g. reduced feeding activity), but birds would be expected to habituate to noise levels within this range. Noise levels above 70dB would likely result in birds moving out of the affected zone, or leaving the site altogether. At c. 300m, typical noise levels associated with construction activity (BS 5228) are generally below 60dB or, in most cases, are approaching the 50dB threshold.

- 122 At least three of these species from South Dublin Bay and River Tolka Estuary SPA were returned from the desk study and include light-bellied Brent goose, blacked-headed gull and herring gull. The Proposed Scheme is immediately adjacent to the SPA territory at Booterstown Marsh and a small area of amenity grassland and scrub located along the SPA boundary and north-west of the Booterstown Marsh, will be lost. No birds were recorded using this area for foraging and/or roosting during wintering bird surveys. This habitat loss will occur outside the SPA boundary, and therefore there will be no habitat loss from the SPA. There are also a number of suitable inland foraging/roosting sites, which these bird species utilise, located within the potential ZOI of the Proposed Scheme e.g., three of which are immediately adjacent to the SPA territory (See Section 5.1.2 above). In particular, there will be disturbance to SCI birds during construction by virtue of proximity of the proposed works adjacent to Booterstown Marsh and Blackrock College (where screening vegetation will be removed), as well as alongside Blackrock Park overlooking the pond. In addition, the location of the Construction Compound is adjacent to the SPA territory and potential flight path to Blackrock College playing fields. Therefore, there is potential for the Proposed Scheme to result in the disturbance/displacement of SCI bird species associated with SPA populations.
- 123 In addition to South Dublin Bay and River Tolka SPA, which is immediately adjacent to the Proposed Scheme at Booterstown Marsh, there are a number of SPAs located in relatively close proximity to the Proposed Scheme which are designated for SCI species that are known to forage and/or roost at inland sites, such as amenity grassland playing pitches i.e. Malahide Estuary SPA, Baldoyle Bay SPA, North Bull Island SPA, and Rogerstown Estuary SPA, Skerries Islands SPA, Ireland's Eye SPA and Lambay Island SPA, as well as The Murrrough SPA (a distal site outside the typical 20km range but nonetheless supporting Brent Geese and a number of other SCI species that are recorded from Dublin Bay).
- 124 Although no signs of kingfisher were recorded during field surveys of the Proposed Scheme, kingfisher, an Annex I bird species, is known to be present in the wider study area, in particular, along the Dodder River and the Grand Canal, as well as along the Nutley stream. Any kingfisher populations which are present in the vicinity of the Proposed Scheme are not considered to be associated with the SCI populations of any European site. Kingfisher territories can extend over approximately 3-5km of a river catchment¹⁶. The nearest SPA for which kingfisher has been designated is the River Boyne and Blackwater SPA, which is located approximately 40km away, therefore kingfisher present in the vicinity of the Proposed Scheme are not associated with an SPA population.
- 125 Although no signs of otter were recorded during multidisciplinary field surveys of the Proposed Scheme, the River Dodder and the Grand Canal are known to support otter, an Annex II and IV mammal species. Further survey at likely watercourses supporting otter activity (based on desktop research and assessment of watercourse condition (culverted, supporting habitat, feed potential) returned an unconfirmed footprint, which could belong to otter. The nearest SAC to the Proposed Scheme for which otter has been designated is Wicklow Mountains SAC which is located approximately 11.7km upstream, within the same WFD sub-catchment.
- 126 Research carried out by Ó'Neíll *et al.* (2009) on ranging behaviours of otter on river systems in Ireland found that female otter ranges averaged 7.5km while male otter home ranges varied up to 21km. Therefore, it cannot be ruled out that otter recorded from the Dodder River and Grand Canal where intersected by the Proposed Scheme are not associated with the QI populations of Wicklow Mountains SAC. However, no significant impacts on otter are predicted as a result of disturbance/displacement from the Proposed Scheme for the following reasons:
- Notwithstanding the fact that the Proposed Scheme crosses two watercourses for which otter are known to inhabit, the corridor is a pre-existing national road into Dublin City. Otter are known to commute and reside nearby these areas and as such are likely to be tolerant to traffic noise and other human related noise and disturbance.

¹⁶ RSPB. *Kingfisher breeding, feeding and territory webpage*. Available from: <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/kingfisher/breeding-feeding-territory/>

- The minor nature of the works proposed in the vicinity of the Dodder crossing and Grand Canal. The main works required in these areas include new road markings and signage, traffic signal installation construction of a bus interchange building, construction of a public realm plaza, carriageway and pavement resurfacing, kerb build outs and traffic island construction/removal, landscaping and utility diversions, and the upgrade of the current access ramp from the McCartney Bridge to the Grand Canal.

127 Marine mammals associated with European sites may commute and forage within the Liffey Estuary (to which both the Dodder River and the Grand Canal discharge downstream of the Proposed Scheme) and Dublin Bay, it is not considered to be likely that there will be any impacts on these species as a result of the Proposed Scheme as it terminates inland at Fitzwilliam Street, which is upstream of Dublin Bay, in a highly urbanised environment. The scale of upstream works proposed are considered to be minor. Elsewhere the Proposed Scheme follows a coastal corridor, in places, in close proximity to Dublin Bay. However, it is typically physically separated from the coast by urban development, public park all of which is fronted along its seaward boundary by the Dublin to Bray Greystones DART line/Wexford rail line. Furthermore, the Proposed Scheme does not intersect directly with any estuarine or coastal area (Boosterstown Marsh being isolated from Dublin Bay by a sluice gate that prevents ingress by marine mammal). While marine mammals are documented as being present in South Dublin Bay, it is considered unlikely, given the terrestrial nature of the Proposed Scheme in an urbanised transport corridor separated from direct marine connectivity that there will be any impacts on these species as a result of the Proposed Scheme.

128 As the Proposed Scheme has the potential to result in the disturbance/displacement of the qualifying/special conservation interest species of any European site, there is the potential for in combination effects to occur in association with other activities/plans/projects.

3.7.7 Summary

129 The hydrological, hydrogeological, non-native invasive species, air quality and disturbance and displacement impacts associated with the Proposed Scheme have the potential to affect the receiving environment and, consequently, have the potential to affect the conservation objectives supporting the QI /SCI of a European site(s). Therefore, the Proposed Scheme is likely to have significant effects on a European site(s) cannot be excluded.

130 As the potential for the Proposed Scheme itself to affect the QIs/SCIs or conservation objectives of a European site(s) cannot be excluded, there is also the potential for other plans or projects to act in combination with it to result in likely significant effects on European sites.

131 The potential impacts of the Proposed Scheme on the receiving environment, their Zol, and the European sites for which likely significant effects cannot be excluded are summarised in **Table 6**. In assessing the potential for the Proposed Scheme to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

Table 6 Summary of Analysis of Likely Significant Effects on European sites

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the Proposed Scheme?
<p>Habitat loss</p> <p>No European sites are at risk of direct habitat loss impacts</p> <p>There is potential for loss of <i>ex situ</i> inland feeding sites used by SCI wintering bird species.</p>	<p>Yes</p> <p>There are European sites at risk of <i>ex situ</i> habitat losses:</p> <p>Malahide Estuary SPA, Baldoyle Bay SPA, Rogerstown Estuary SPA, North Bull Island SPA and South Dublin Bay and River Tolka SPA, Skerries Islands SPA, Lambay Island SPA, Ireland’s Eye SPA and The Murrugh SPA</p> <p>There is also potential indirect loss of Annex I saltmarsh habitat through hydrological emergency.</p>
<p>Habitat degradation/ effects on QI/SCI species as a result of hydrological impacts</p> <p>Habitats and species downstream of the Proposed Scheme and the associated surface water drainage discharge points, and downstream of offsite wastewater treatment plants.</p>	<p>Yes.</p> <p>There are European sites at risk of hydrological effects associated with the Proposed Scheme, namely:</p> <p>North Dublin Bay SAC, South Dublin Bay SAC, Wicklow Mountains SAC, Howth Head Coast SPA, Rockabill to Dalkey Island SAC, Lambay Island SAC, North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA and Dalkey Islands SPA, Baldoyle Bay SAC, Baldoyle Bay SPA, Ireland’s Eye SAC, Ireland’s Eye SPA, Skerries Islands SPA, Rockabill SPA, Lambay Island SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Dalkey Islands SPA and The Murrugh SPA.</p>
<p>Habitat degradation as a result of hydrogeological impacts</p> <p>Groundwater-dependant habitats, and the species those habitats support, in the local area that lie downgradient of the Proposed Scheme.</p>	<p>Yes</p> <p>There is one European site at risk of hydrogeological effects associated with the Proposed Scheme during the Construction Phase. South Dublin Bay and River Tolka Estuary SPA, at Booterstown Marsh.</p>
<p>Habitat degradation as a result of introducing/spreading non-native invasive species</p> <p>Habitat areas within, adjacent to, and potentially downstream of the Proposed Scheme.</p>	<p>Yes.</p> <p>There are non-native invasive species present within or adjacent to the Proposed Scheme and in the surrounding area, therefore there is a risk associated with the Proposed Scheme to adjacent European site e.g. South Dublin Bay and River Tolka Estuary SPA and downstream European sites in Dublin Bay from the spread/introduction of non-native invasive species</p> <p>South Dublin Bay and River Tolka Estuary SPA , South Dublin Bay SAC, North Dublin Bay SAC, and North Bull Island SPA.</p>
<p>Air Quality impacts</p> <p>Potentially up to 50m from the Proposed Scheme boundary and 500m from the Construction Compound at</p>	<p>Yes</p> <p>The Proposed Scheme is adjacent to two European sites and there is potential for air</p>

Potential Direct, Indirect In Combination Effects and the Zol of the Potential Effects	Are there any European sites within the Zol of the Proposed Scheme?
Construction phase, and up to 200 metres at Operation Phase.	quality impacts associated with the Proposed Scheme. South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC
Disturbance and displacement impacts Potentially up to several hundred metres from the Proposed Scheme, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the Proposed Scheme, taking into account the sensitivity of the qualifying interest species to disturbance effects	Yes. There is one European site within the potential zone of influence of disturbance effects associated with the Construction or Operation of the Proposed Scheme: South Dublin Bay and River Tolka Estuary SPA at Booterstown Marsh. There are also identified <i>ex situ</i> inland feeding sites both adjacent to the Proposed Scheme (Blackrock Park and Blackrock College) and further afield, which are utilised by SCI wintering bird species within the potential disturbance Zol of the Proposed Scheme: Malahide Estuary SPA, Baldoyle Bay SPA, Rogerstown Estuary SPA, North Bull Island SPA, South Dublin Bay and River Tolka SPA, Skerries Islands SPA, Ireland's Eye SPA, Lambay Island SPA and The Murrough SPA. Otter is a QI for a single distal SAC, namely Wicklow Mountains SAC and for which there is potential for Construction and Operation impacts.

3.8 In-Combination Effects

- 132 This section presents the assessment carried out to examine whether other plans or projects have the potential to act in combination with the Proposed Scheme to have a significant effect on European sites.
- 133 There are 18 European sites within the Zol of the Proposed Scheme as outlined above in Section 3.6.1. These are South Dublin Bay SAC, North Dublin Bay SAC, Howth Head SAC, Rockabill to Dalkey Island SAC, Wicklow Mountains SAC, Howth Head Coast SPA, Dalkey Islands SPA, Rockabill SPA, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Malahide Estuary SPA, Baldoyle Bay SPA, Rogerstown Estuary SPA, Skerries Islands SPA, Ireland's Eye SPA, Rockabill SPA, Lambay Island SPA, Dalkey Islands SPA and The Murrough SPA.
- 134 All other European sites fall beyond the Zol of the Proposed Scheme. Therefore, there is no potential for any other plans or projects to act in combination with the Proposed Scheme to adversely affect the integrity of any other European sites.
- 135 The in-combination assessment involved first identifying those plans and projects which have the potential to impact on those European sites within the Zol of the Proposed Scheme.
- 136 Those plans or projects with the potential to impact upon these European sites are any national, regional and local land use plans or any existing or proposed projects that could potentially affect the ecological environment within the Zol of the Proposed Scheme. These are presented in Table 7 and Table 8.

Table 7 Land use plans and programmes considered for the in-combination assessment

National Plans
National Energy & Climate Plan 2021-2030
National Spatial Strategy for Ireland 2002-2020
Project Ireland 2040 – Building Ireland’s Future ¹⁷
National Transport Authority Integrated Implementation Plan 2019-2024
Smarter Travel a Sustainable Transport Future 2009-2020
National Biodiversity Action Plan 2017-2021
River Basin Management Plan 2018-2021
National Air Pollution Control Programme (NAPCP) Draft 2019
National Marine Planning Framework 2018
Water Services Strategic Plan 2015
Regional Plans
Regional Planning Guidelines for the Greater Dublin Area Vol I & II 2010-2022; Regional Spatial & Economic Strategy for the Eastern and Midland Region 2019-2031
Greater Dublin Area Cycle Network Plan 2013
Eastern Catchment Flood Risk Assessment and Management (CFRAM) study 2011-2016
County/Local Plans
Fingal Development Plan 2017-2023
Fingal Biodiversity Action Plan 2010-2015
Fingal County Council Climate Action Plan 2019-2024
<ul style="list-style-type: none"> • Donabate Local Area Plan 2016 • Rivermeade Local Area Plan 2018 • Barnhill Local Area Plan 2019 • Kinsaley Local Area Plan 2019 • Dublin Airport Local Area Plan 2020
Dublin City Development Plan 2016-2022
Dublin City Biodiversity Action Plan 2015-2020
Dublin City Council Climate Action Plan 2019-2024
<ul style="list-style-type: none"> • Clongriffin-Belmayne Local Area Plan 2012-2018 • George’s Quay Local Area Plan 2012-2022 • Ballymun Local Area Plan 2017 • The Liberties Local Area Plan 2009-2020 • Naas Road Local Area Plan 2013-2023 • Park West- Cherry Orchard Local Area Plan 2019
South Dublin County Council Development Plan 2016-2022
Biodiversity Action Plan for South Dublin County (2020-2026)- Draft for public consultation
South Dublin County Council Climate Change Action Plan 2019-2024
<ul style="list-style-type: none"> • Tallaght Town Centre Local Area Plan 2020 • Liffey Valley Town Centre Local Area Plan 2008
Dún Laoghaire- Rathdown Development Plan 2016-2022; Dún Laoghaire- Rathdown Development Plan (2022-2028)- Draft for public consultation

¹⁷ Together the National Development Plan and the National Framework are referred to as Project Ireland 2040: Building Ireland’s Future

Dún Laoghaire- Rathdown Biodiversity Plan 2009-2013; Dún Laoghaire- Rathdown Biodiversity Plan (current draft under review)

Dún Laoghaire-Rathdown County Council Climate Change Action Plan 2019-2024

- Deansgrange Local Area Plan 2010-2020
- Stillorgan Local Area Plan 2018-2024
- Blackrock Local Area Plan 2015-2021
- Woodbrook-Shanganagh Local Area Plan 2017-2024

Wicklow County Development Plan 2016-2022

Wicklow Biodiversity Plan 2010-2015

Wicklow County Council Climate Change Adaptation Strategy 2019

- Bray Municipal District Local Area Plan 2018-2024
- Bray & Environs Transport Study 2019
- Bray Town Development Plan 2011-2017

Table 8 Projects considered for the in-combination assessment

- Southern Port Access Route (SPAR)
- Widening of the M7 between Junction 9 (Naas North) and Junction 11 (M7/M9) to provide an additional lane in each direction
- Enhancements of the N2/M2 national route inclusive of a bypass of Slane, to provide for additional capacity on the non-motorway sections of this route, and to address safety issues in Slane village associated with, in particular, heavy goods vehicles
- N3 Castaheany Interchange Upgrade: refer to “Details” link
- Reconfiguration of the N7 from its junction with the M50 to Naas, to rationalise junctions and accesses in order to provide a higher level of service for strategic traffic travelling on the mainline
- N3–N4: Barnhill to Leixlip Interchange
- Reconfiguration of the N4 from its junction with the M50 to Leixlip to rationalise accesses and to provide additional capacity at the Quarryvale junction
- Clonburris SDZ roads development: refer to “Details” link
- DART+ Programme West
- Porterstown Distributor Link Road
- Widening of the N3 between Junction 1 (M50) and Junction 4 (Clonee), plus related junction and necessary changes to the existing national road network
- Lucan LUAS
- DART+ Programme South West
- Junction upgrades and other capacity improvements on the M1 motorway, including additional lanes south of Drogheda, where required
- Finglas LUAS (Green Line extension Broombridge to Finglas)
- DART+ Tunnel Element (Kildare Line to Northern Line)
- Potential Metro South alignment: SW option
- LUAS Cross City incorporating LUAS Green Line Capacity Enhancement - Phase 1
- Oldtown-Mooretown Western Distributor Link Road
- Potential Metro South alignment: Charlemont to Sandyford
- Poolbeg LUAS
- Leopardstown Link Road Phase 2
- Development of a road link connecting from the southern end of the Dublin Port Tunnel to the South Port area, which will serve the South Port and adjoining development areas
- Poolbeg SDZ roads development: refer to “Details” link
- Glenamuck District Distributor Road
- DART+ Programme Coastal North
- Widening of the M50 to three lanes in each direction between Junction 14 (Sandyford) and Junction 17 (M11) plus related junction and other changes
- Cherrywood SDZ roads development: refer to “Details” link

- DART+ Programme Coastal South
- R126 Donabate Relief Road: R132 to Portrane Demesne
- Extension of LUAS Green Line to Bray
- Capacity enhancement and reconfiguration of the M11/N11 from Junction 4 (M50) to Junction 14 (Ashford) inclusive of ancillary and associated road schemes, to provide additional lanes and upgraded junctions, plus service roads and linkages to cater for Io
- MetroLink
- Greater Dublin Drainage (GDD)
- Cycling: Greater Dublin Area Cycle Network Plan (excluding Radial Core Bus Corridor elements)
- Dublin Array - offshore windfarm
- Air insulated switchgear 110kV transmission substation. Platin, Duleek
- Construction of a new distributor road and junction to the southwest of Kells town centre. Kells
- Dublin Mountain Visitors Centre and all associated works. Killakee and Jamestown.
- FCC/12/0001 Broadmeadow Way. Greenway between Malahide Demesne and Newbridge Demesne to be known as 'Broadmeadow Way'. Malahide.
- Alternations to a permitted double circuit 110kV electricity transmission line development between substations. Darndale / Belcamp
- 110kV onsite electrical substation with associated electrical plant, electrical equipment, welfare facilities and waste water holding tank and security fencing. 110kV overhead line grid connection cabling, upgrade of existing tracks and provision of new site access roads with all associated site development and ancillary works. Timahoe East
- 15-year permission for development at Oil Berth 3 and Oil Berth 4, Eastern Oil Jetty and at Berths 50A, 50N, 50S, 51, 51A, 49, 52, 53 and associated terminal yards to provide for various elements including new Ro-Ro jetty and consolidation of passenger terminal buildings. Dublin Port.
- A residential development with ancillary commercial uses (retail unit, café and crèche) partially comprising a "Build to Rent" scheme on circa 9.69 hectares. The townlands of Shanganagh, Cork Little and Shankill, Co. Dublin.
- The proposed development for Brexit Infrastructure will consist of - Installation of porta-cabin structures. Resurfacing and amalgamation of existing yards. Parking for heavy good vehicles, cars and bicycles. Gates, signage and all ancillary site works. Dublin Port.
- Provision of a double circuit 220kV transmission line and a 220kV gas insulated switchgear (GIS) substation along with associated and ancillary works. Townlands of Cruiserath, Goddamendy and Bay, Co. Dublin.
- Construction of a 2 storey 110kV Gas Insulated Switchgear (GIS) substation, underground cable and all associated and ancillary site works. Former Clyde House, IDA Blanchardstown Business and Technology Park, Snugborough Road, Blanchardstown, Dublin 15
- Flood alleviation works along and adjacent to the River Poddle extending from the upper reaches of the river. Tymon North, Tallaght to Merchant's Quay, Dublin.
- Aviation fuel pipeline. Location: Inlet Station: Team CV, Bond Drive, Dublin Port, Dublin 1 to Dublin Airport, Co. Dublin
- Park development project at the Racecourse Park
- 2 no. 110kV transmission lines and a 110kV Gas Insulated Switchgear (GIS) substation
- Clongriffin to City Centre Core Bus Corridor Scheme
- Swords to City Centre Core Bus Corridor Scheme
- Ballymun / Finglas to City Centre Core Bus Corridor Scheme
- Blanchardstown to City Centre Core Bus Corridor Scheme
- Lucan to City Centre Core Bus Corridor Scheme
- Liffey Valley to City Centre Core Bus Corridor Scheme
- Tallaght / Clondalkin to City Centre Core Bus Corridor Scheme
- Templeogue / Rathfarnham to City Centre Core Bus Corridor Scheme
- Kimmage to City Centre Core Bus Corridor Scheme
- Bray to City Centre Core Bus Corridor Scheme
- Ringsend to City Centre Core Bus Corridor Scheme
- A range of Strategic Housing Developments
- A range of Irish Water Projects

- 137 There is the potential for developments listed in Table 7, or those implemented under a range of land use and other plans listed in Table 8, to lie either within European sites, or be situated in a location where they may be within the ZoI of the European sites which also fall within the ZoI of the Proposed Scheme.
- 138 Key development projects with potential for in-combination effects due to their size, nature and/or location include other Core Bus Corridor Schemes, MetroLink, upgrades to or new rail infrastructure, utility infrastructure including proposed or consented water utility improvement.
- 139 The potential for in combination effects between these plans and projects and the Proposed Scheme arises via the same pathways for potential effects as identified above in **Table 6** for the Proposed Scheme (i.e. hydrological, invasive species, air quality, and disturbance and displacement effects) which could act in combination with similar effects and pathways arising from the various plans.
- 140 Therefore the potential for the following in combination effects arising from plans cannot be ruled out:
- Habitat fragmentation (for example European sites at risk of *ex situ* habitat losses; South Dublin Bay and River Tolka SPA, North Bull Island SPA, Dalkey Islands SPA, Baldoyle Bay SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA and The Murrough SPA);
 - Habitat degradation/effects on QI/SCI species as a result of hydrological impacts (for example reduction in water quality in catchments draining to Dublin Bay affecting the conservation objectives supporting aquatic habitats and species in North Dublin Bay SAC, South Dublin Bay SAC, Howth Head SAC, Howth Head Coast SPA, Rockabill to Dalkey Island SAC, Lambay Island SAC, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Dalkey Islands SPA, Baldoyle Bay SAC, Baldoyle Bay SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Ireland's Eye SPA, Skerries Islands SPA, Rockabill SPA, Lambay Island SPA and The Murrough SPA);
 - Habitat degradation as a result of introducing/spreading non-native invasive species;
 - Habitat degradation as a result of air quality impacts (for example South Dublin Bay and River Tolka Estuary SPA will be adjacent to Clontarf Road at risk of increased traffic flows from the Proposed Scheme); and,
 - Disturbance and displacement impacts (for example *ex situ* inland feeding sites which are utilised by SCI wintering bird species within the potential disturbance ZoI of the Proposed Scheme for South Dublin Bay and River Tolka SPA, North Bull Island SPA, Malahide Estuary SPA, Baldoyle Bay SPA, Rogerstown Estuary SPA, Skerries Islands SPA, Ireland's Eye SPA, Lambay Island SPA and The Murrough SPA)

4 Conclusions of the Screening Assessment Process

Following an examination, analysis and evaluation of the all relevant information, in view of best scientific knowledge, and applying the precautionary principle, it can be concluded that there is the possibility for significant effects on the following European sites, in the absence of mitigation, either arising from the project alone or in combination with other plans and projects, as a result of hydrological impacts, invasive species, air quality impacts and disturbance and displacement impacts: North Dublin Bay SAC; South Dublin Bay SAC; Howth Head SAC; Rockabill to Dalkey Island SAC; Lambay Island SAC; Wicklow Mountains SAC; Howth Head Coast SPA; Dalkey Islands SPA; Rockabill SPA; North Bull Island SPA; South Dublin Bay and River Tolka Estuary SPA; Ireland's Eye SPA; Malahide Estuary SPA; Baldoyle Bay SPA; Rogerstown Estuary SPA; Skerries Islands SPA; Lambay Island SPA; and, The Murrough SPA.

- 141 In reaching this conclusion, the nature of the project and its potential relationship with all European sites within the zone of influence, and their conservation objectives, have been fully considered.
- 142 Therefore, it is the professional opinion of the authors of this report that the application for approval for the Proposed Scheme does require a Stage Two Appropriate Assessment in respect of the above-listed 18 no. European sites (6 no. SACs and 12 no. SPAs) and, consequently, the preparation of a Natura Impact Statement (NIS).

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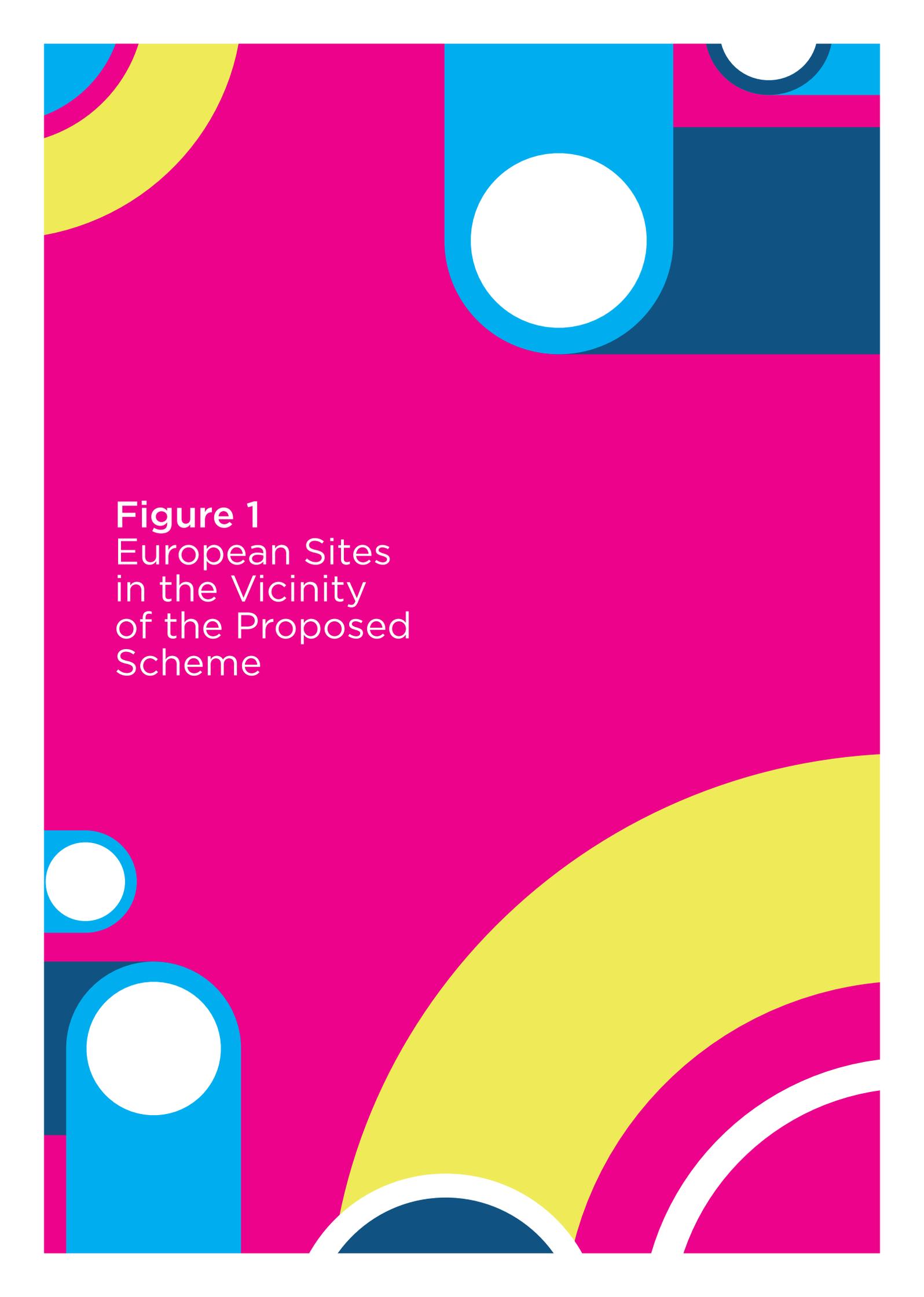
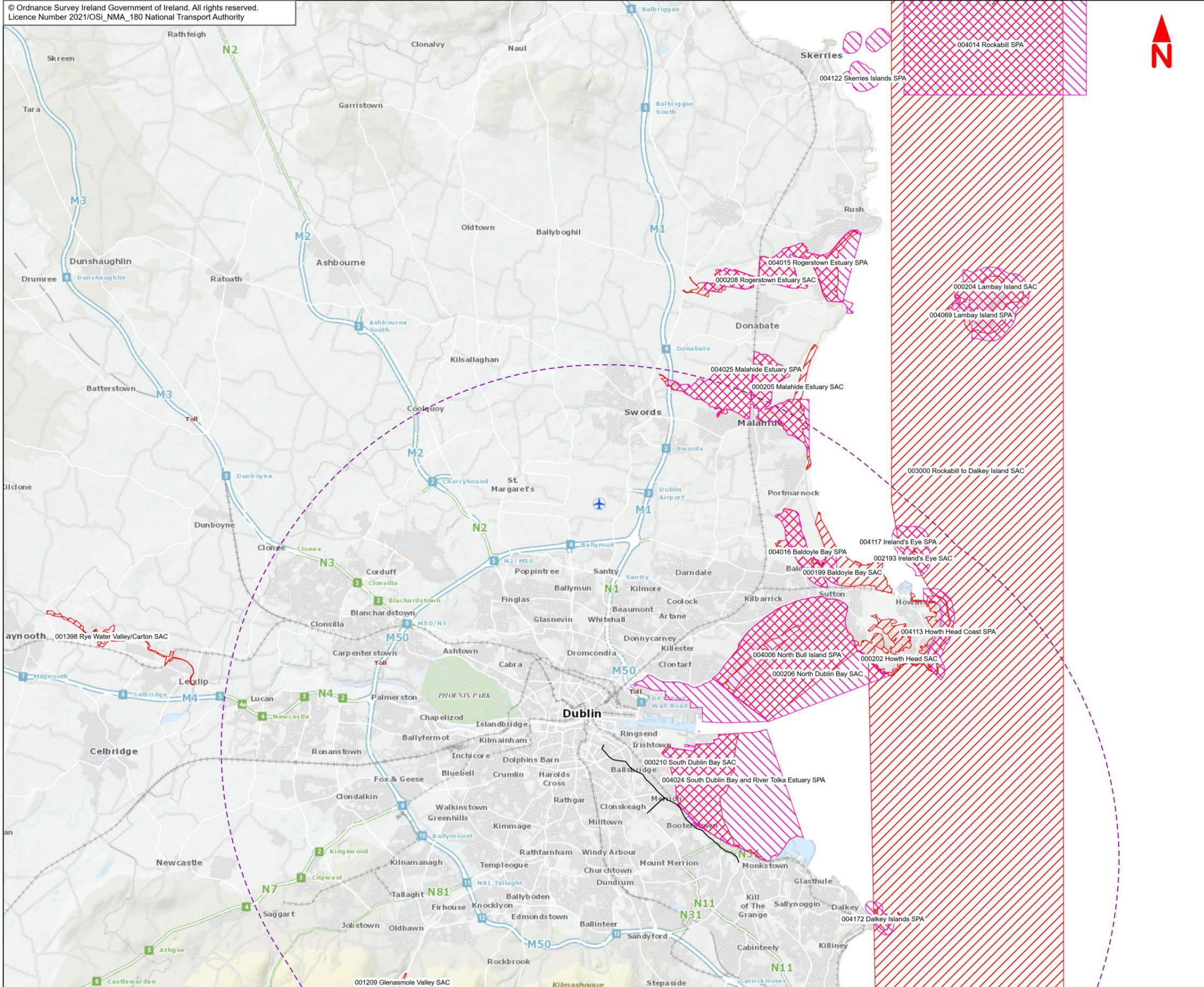
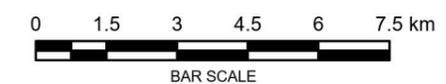


Figure 1
European Sites
in the Vicinity
of the Proposed
Scheme



- Legend :**
- Belfield / Blackrock to City Centre Core Bus Corridor Scheme
 - 15km from Proposed Scheme
 - Special Protection Areas (SPA)
 - Special Area of Conservation (SAC)

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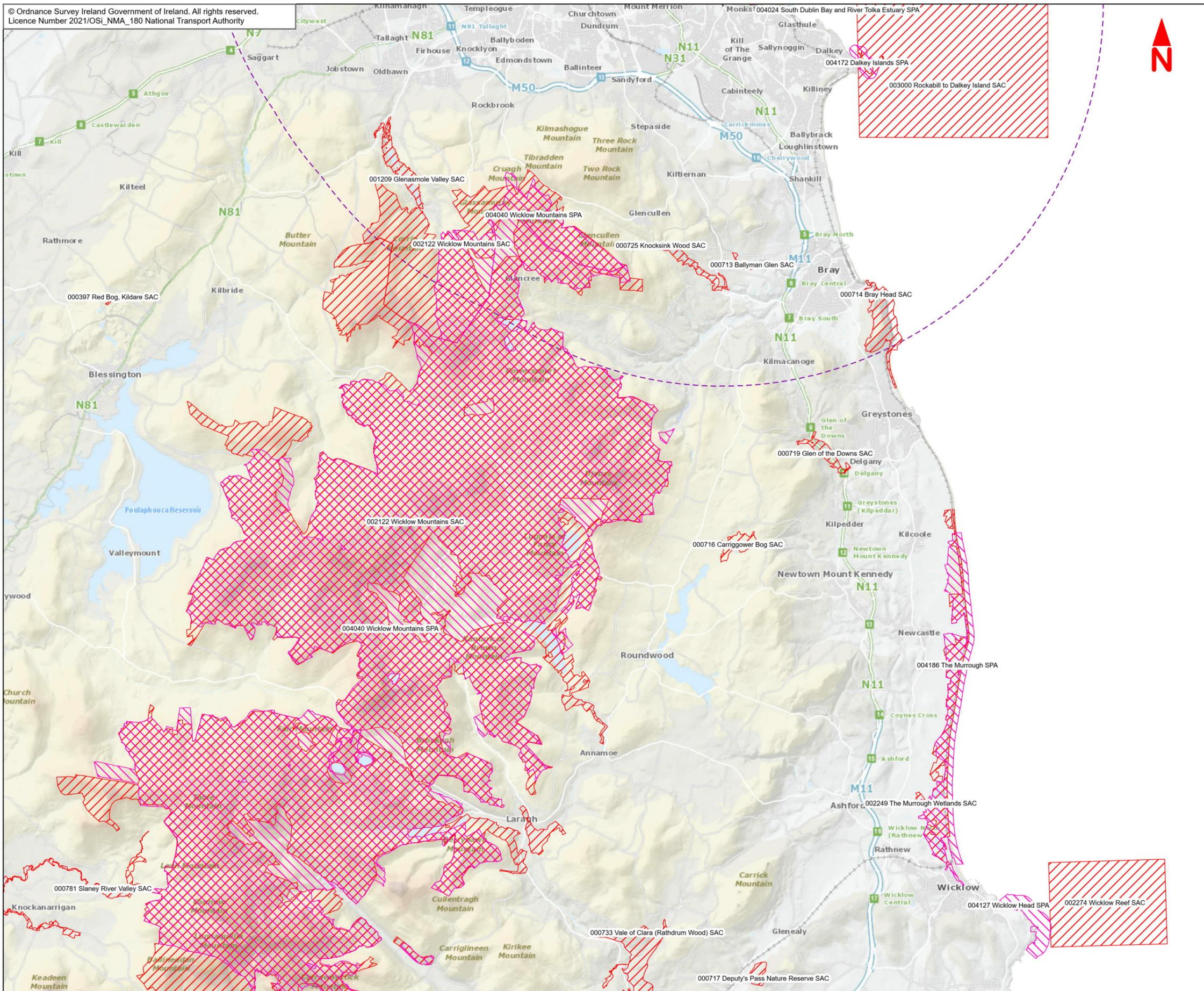
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National Transport Authority

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Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS				
Drawing Title Belfield / Blackrock to City Centre Core Bus Corridor Scheme Figure 1 European sites in the Vicinity of the Proposed Scheme				
Date 1/24/2022	Scale @ A3 1:150 000	Drawn EK	Checked PW	Approved DK
Project Code BCIDE	Originator Code JAC	GMS Code		
Drawing File Name BCIDE-JAC-ENV_BD-1415_XX_00-DR-GG-2090	Sheet Number 1 of 2	Status A	Rev M01	



- Legend :**
- Belfield / Blackrock to City Centre Core Bus Corridor Scheme
 - 15km from Proposed Scheme
 - Special Protection Areas (SPA)
 - Special Area of Conservation (SAC)

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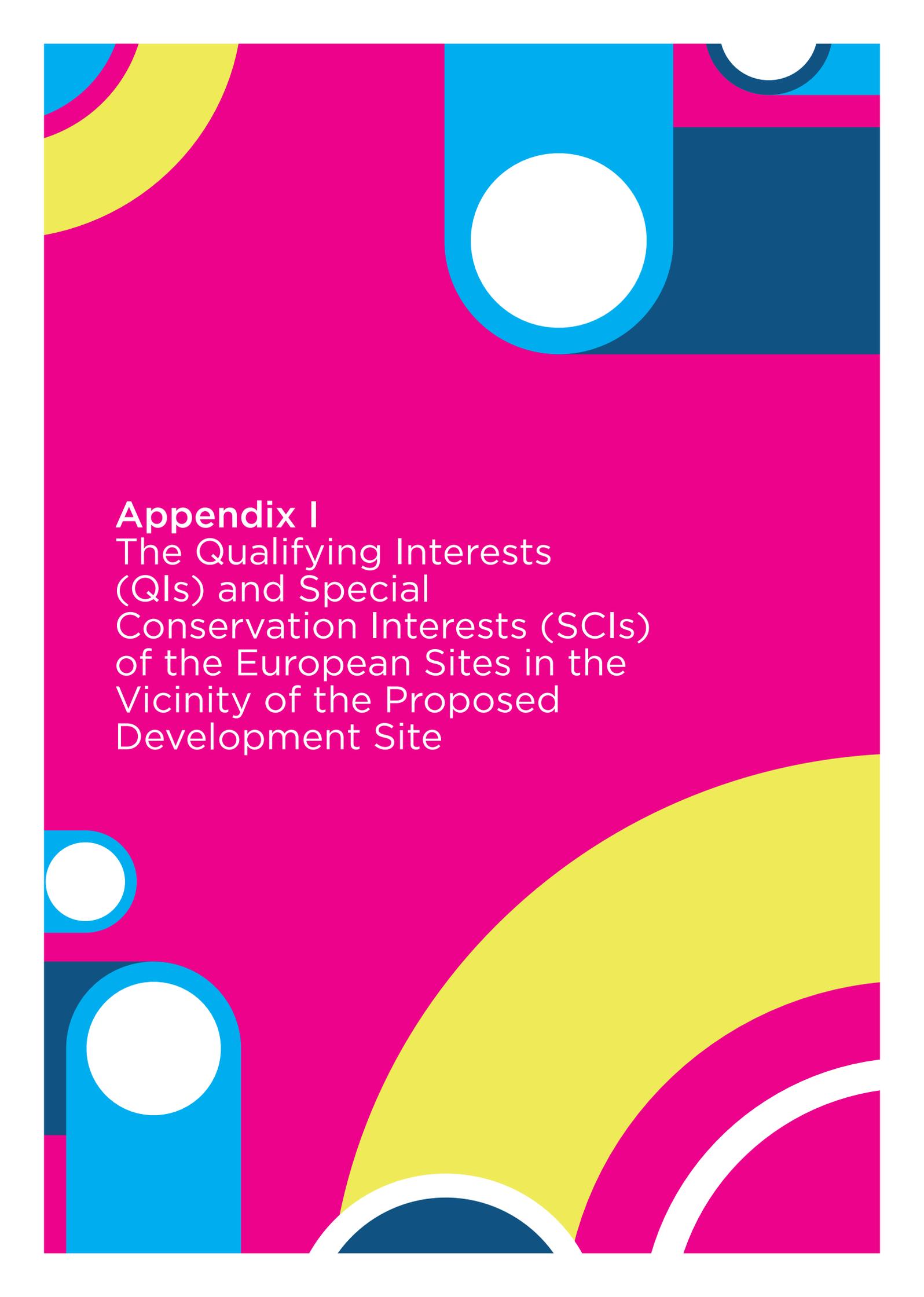
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 Date: 1/24/2022
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 Project Code: BCIDE
 Originator Code: JAC

Consultant

 Drawn: EK
 Checked: PW
 Approved: DK

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS				
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Drawing File Name BCIDE-JAC-ENV_BD-1415_XX_00-DR-GG-2091	Sheet Number 2 of 2	Status A	Rev M01	



Appendix I
The Qualifying Interests
(QIs) and Special
Conservation Interests (SCIs)
of the European Sites in the
Vicinity of the Proposed
Development Site

Appendix I

The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the vicinity of the Proposed Scheme¹⁸

European Site Name [Code] and its Qualifying interest(s)/Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme (as the crow flies)
Special Area of Conservation (SAC)	
<p>South Dublin Bay SAC [000210] 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 <i>Salicornia</i> and other annuals colonising mud and sand 2110 Embryonic shifting dunes</p> <p><i>S.I. No. 525/2019 – European Union Habitats (South Dublin Bay Special Area of Conservation 000210) Regulations 2019</i> NPWS (2013a) <i>Conservation Objectives: South Dublin Bay SAC 000210</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Immediately adjacent to the Proposed Scheme</p>
<p>North Dublin Bay SAC [000206] 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 <i>Salicornia</i> and other annuals colonising mud and sand 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) 1395 Petalwort <i>Petalophyllum ralfsii</i> 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks</p> <p><i>S.I. No. 524/2019 – European Union Habitats (North Dublin Bay Special Area of Conservation 000206) Regulations 2019</i> NPWS (2013b) <i>Conservation Objectives: North Dublin Bay SAC 000206</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Approximately 4.7km from the Proposed Scheme</p>
<p>Rockabill to Dalkey Island SAC [003000] 1170 Reefs 1351 Harbour porpoise <i>Phocoena phocoena</i></p> <p><i>S.I. No. 94/2019 – European Union Habitats (Rockabill To Dalkey Island Special Area Of Conservation 003000) Regulations 2019</i> NPWS (2013c) <i>Conservation Objectives: Rockabill to Dalkey Island SAC 003000</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>Approximately 5.3km from the Proposed Scheme</p>

¹⁸ The versions of the conservation objectives documents referenced in this table are the most recent published versions at the time of writing.

European Site Name [Code] and its Qualifying interest(s)/Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme (as the crow flies)
<p>Howth Head SAC [000202] 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths</p> <p><i>S.I. No. 524/2021 – European Union Habitats (Howth Head Special Area of Conservation 000202) Regulations 2021.</i> NPWS (2016) <i>Conservation Objectives: Howth Head SAC 000202</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>Approximately 9.2km from the Proposed Scheme</p>
<p>Wicklow Mountains SAC [002122] 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> 4030 European dry heaths 4060 Alpine and Boreal heaths 6130 <i>Calaminarian</i> grasslands of the <i>Violetalia calaminariae</i> 6230 Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) 7130 Blanket bogs (* if active bog) 8110 Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) 8210 Calcareous rocky slopes with chasmophytic vegetation 8220 Siliceous rocky slopes with chasmophytic vegetation 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles 1355 <i>Lutra lutra</i> (Otter)</p> <p>NPWS (2017a) <i>Conservation Objectives: Wicklow Mountains SAC 002122</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>Approximately 9.3km from the Proposed Scheme</p>
<p>Knocksink Wood SAC [000725] 7220 Petrifying Springs with Tufa formation (Cratoneurion)* 91A0 Old Sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles 91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)*</p> <p><i>S.I. No. 93/2019- European Union Habitats (Knocksink Wood Special Area of Conservation 000725) Regulations 2019</i> NPWS (2021h) <i>Conservation objectives for Knocksink Wood SAC [000725]</i>. Version 1.0. Department of Housing, Local Government and Heritage.</p>	<p>Approximately 9.6km from the Proposed Scheme</p>
<p>Ballyman Glen SAC [000713] 7220 Petrifying springs with tufa formation (Cratoneurion)* 7230 Alkaline fens</p>	<p>Approximately 9.7km from the Proposed Scheme</p>

European Site Name [Code] and its Qualifying interest(s)/Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme (as the crow flies)
<p><i>S.I. No. 92/2019- European Union Habitats (Ballyman Glen Special Area of Conservation 000713) Regulations 2019</i></p> <p>NPWS (2019) <i>Conservation objectives: Ballyman Glen SAC [000713].</i> Version 1.0. Department of Housing, Local Government and Heritage.</p>	
<p>Baldoyle Bay SAC [000199]</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1310 <i>Salicornia</i> and other annuals colonizing mud and sand</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p><i>S.I. No. 472/2021 – European Union Habitats (Baldoyle Bay Special Area of Conservation 000199) Regulations 2021</i></p> <p>NPWS (2012) <i>Conservation Objectives: Baldoyle Bay SAC 000199.</i> Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>approximately 10.1km from the Proposed Scheme</p>
<p>Glenasmole Valley SAC [001209]</p> <p>6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites)</p> <p>6410 <i>Molinia meadows</i> on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</p> <p>7220 Petrifying springs with tufa formation (<i>Cratoneurion</i>)*</p> <p>NPWS (2021a) <i>Conservation objectives for Glenasmole Valley SAC [001209].</i> Generic Version 1.0. Department of Housing, Local Government and Heritage.</p>	<p>approximately 11.4km from the Proposed Scheme</p>
<p>Bray Head SAC [002193]</p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>4030 European dry heaths</p> <p><i>S.I. No. 620/2017 - European Union Habitats (Bray Head Special Area of Conservation 000714) Regulations 2017</i></p> <p>NPWS (2017b) <i>Conservation objectives: Bray Head SAC [000714].</i> Version 1.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>approximately 12.2km from the Proposed Scheme</p>
<p>Ireland's Eye SAC [002193]</p> <p>1220 Perennial vegetation of stony banks</p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p><i>S.I. No. 501/2017 - European Union Habitats (Ireland's Eye Special Area of Conservation 002193) Regulations 2017</i></p> <p>NPWS (2017c) <i>Conservation objectives: Ireland's Eye SAC [002193].</i> Version 1.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.</p>	<p>approximately 13.3km from the Proposed Scheme</p>
<p>Malahide Estuary SAC [000205]</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1310 <i>Salicornia</i> and other annuals colonising mud and sand</p>	<p>approximately 13.5km from the Proposed Scheme</p>

European Site Name [Code] and its Qualifying interest(s)/Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme (as the crow flies)
<p>1320 <i>Spartina</i> swards (<i>Spartinion maritimae</i>)¹⁹</p> <p>1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)</p> <p>1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>)</p> <p>2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)</p> <p>2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*</p> <p><i>S.I. No. 91/2019 - European Union Habitats (Malahide Estuary Special Area of Conservation 000205) Regulations 2019</i></p> <p>NPWS (2013a) <i>Conservation Objectives: Malahide Estuary SAC 000205. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p>Lambay Island SAC [000204]</p> <p>1170 Reefs</p> <p>1230 Vegetated sea cliffs of the Atlantic and Baltic coasts</p> <p>1364 Grey seal <i>Halichoerus grypus</i></p> <p>1365 Harbour seal <i>Phoca vitulina</i></p> <p><i>S.I. No. 294/2019 - European Union Habitats (Lambay Island Special Area of Conservation 000204) Regulations 2019</i></p> <p>NPWS (2013b) <i>Conservation Objectives: Lambay Island SAC 000204. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>approximately 21.7km from the Proposed Scheme</p>
Special Protection Area (SPA)	
<p>South Dublin Bay and River Tolka Estuary SPA [004024]</p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p>A999 Wetland and Waterbirds</p>	<p>immediately adjacent to the Proposed Scheme (at Booterstown marsh)</p>

¹⁹ 1320 *Spartina* swards (*Spartinion maritimae*) habitat is included within the conservation objectives document for Malahide Estuary SAC, but not within the Statutory Instruments document. This is likely because *Spartina* is an invasive alien species in Ireland and as such NPWs have not set a conservation target for it, nor is there a requirement to assess the habitat as a QI.

European Site Name [Code] and its Qualifying interest(s)/Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme (as the crow flies)
<p><i>S.I. No. 212/2010 - European Communities (Conservation of Wild Birds (South Dublin Bay and River Tolka Estuary Special Protection Area 004024)) Regulations 2010.</i></p> <p>NPWS (2015a) <i>Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024.</i> Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p>North Bull Island SPA [004006]</p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A052 Teal <i>Anas crecca</i></p> <p>A054 Pintail <i>Anas acuta</i></p> <p>A056 Shoveler <i>Anas clypeata</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A143 Knot <i>Calidris canutus</i></p> <p>A144 Sanderling <i>Calidris alba</i></p> <p>A149 Dunlin <i>Calidris alpina</i></p> <p>A156 Black-tailed Godwit <i>Limosa limosa</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A160 Curlew <i>Numenius arquata</i></p> <p>A162 Redshank <i>Tringa totanus</i></p> <p>A169 Turnstone <i>Arenaria interpres</i></p> <p>A179 Black-headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A999 Wetlands & Waterbirds</p> <p><i>S.I. No. 211/2010 - European Communities (Conservation of Wild Birds (North Bull Island Special Protection Area 004006)) Regulations 2010.</i></p> <p>NPWS (2015) <i>Conservation Objectives: North Bull Island SPA 004006.</i> Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>approximately 4.7km from the Proposed Scheme</p>
<p>Dalkey Islands SPA [004172]</p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p><i>S.I. No. 238/2010 - European Communities (Conservation of Wild Birds (Dalkey Islands Special Protection Area 004172)) Regulations 2010</i></p> <p>NPWS (2021b) <i>Conservation objectives for Dalkey Islands SPA [004172].</i> Generic Version 8.0. Department of Housing, Local Government and Heritage.</p>	<p>approximately 5.3km from the Proposed Scheme</p>
<p>Wicklow Mountains SPA [004040]</p> <p>A098 Merlin <i>Falco columbarius</i></p> <p>A103 Peregrine <i>Falco peregrinus</i></p>	<p>approximately 9.6km from the Proposed Scheme</p>

European Site Name [Code] and its Qualifying interest(s)/Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme (as the crow flies)
<p><i>S.I. No. 586/2012 - European Communities (Conservation of Wild Birds (Wicklow Mountains Special Protection Area 004040)) Regulations 2012.</i></p> <p>NPWS (2021c) <i>Conservation objectives for Wicklow Mountains SPA [004040].</i> Generic Version 8.0. Department of Housing, Local Government and Heritage.</p>	
<p>Baldoyle Bay SPA [004016]</p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A137 Ringed Plover <i>Charadrius hiaticula</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p> <p>A141 Grey Plover <i>Pluvialis squatarola</i></p> <p>A157 Bar-tailed Godwit <i>Limosa lapponica</i></p> <p>A999 Wetland and Waterbirds</p> <p><i>S.I. No. 275/2010 - European Communities (Conservation of Wild Birds (Baldoyle Bay Special Protection Area 004016)) Regulations 2010.</i></p> <p>NPWS (2013c) <i>Conservation Objectives: Baldoyle Bay SPA 004016. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>approximately 10.1km from the Proposed Scheme</p>
<p>Howth Head Coast SPA [004113]</p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p><i>S.I. No. 185/2012 - European Communities (Conservation of Wild Birds (Howth Head Coast Special Protection Area 004113)) Regulations 2012.</i></p> <p>NPWS (2021d) <i>Conservation objectives for Howth Head Coast SPA [004113].</i> Generic Version 8.0. Department of Housing, Local Government and Heritage.</p>	<p>approximately 10.6km from the Proposed Scheme</p>
<p>Ireland's Eye SPA [004117]</p> <p>A017 Cormorant <i>Phalacrocorax carbo</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A188 Kittiwake <i>Rissa tridactyla</i></p> <p>A199 Guillemot <i>Uria aalge</i></p> <p>A200 Razorbill <i>Alca torda</i></p> <p><i>S.I. No. 240/2010 - European Communities (Conservation of Wild Birds (Ireland's Eye Special Protection Area 004117)) Regulations 2010.</i></p> <p>NPWS (2021e) <i>Conservation objectives for Ireland's Eye SPA [004117].</i> Generic Version 8.0. Department of Housing, Local Government and Heritage</p>	<p>approximately 13.0km from the Proposed Scheme</p>
<p>Malahide Estuary SPA [004025]</p> <p>A005 Great Crested Grebe <i>Podiceps cristatus</i></p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i></p> <p>A048 Shelduck <i>Tadorna tadorna</i></p> <p>A054 Pintail <i>Anas acuta</i></p> <p>A067 Goldeneye <i>Bucephala clangula</i></p> <p>A069 Red-breasted Merganser <i>Mergus serrator</i></p> <p>A130 Oystercatcher <i>Haematopus ostralegus</i></p> <p>A140 Golden Plover <i>Pluvialis apricaria</i></p>	<p>approximately 13.7km from the Proposed Scheme</p>

European Site Name [Code] and its Qualifying interest(s)/Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme (as the crow flies)
<p>A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A149 Dunlin <i>Calidris alpina</i> A156 Black-tailed Godwit <i>Limosa limosa</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A162 Redshank <i>Tringa totanus</i> A999 Wetland and Waterbirds</p> <p><i>S.I. No. 285/2011 - European Communities (Conservation of Wild Birds (Malahide Estuary Special Protection Area 004025)) Regulations 2011.</i> NPWS (2013d) <i>Conservation Objectives: Malahide Estuary SPA 004025</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	
<p>Rogerstown Estuary SPA [004015] A043 Greylag Goose <i>Anser anser</i> A046 Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A056 Shoveler <i>Anas clypeata</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A137 Ringed Plover <i>Charadrius hiaticula</i> A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A149 Dunlin <i>Calidris alpina alpina</i> A156 Black-tailed Godwit <i>Limosa limosa</i> A162 Redshank <i>Tringa totanus</i> A999 Wetlands</p> <p><i>S.I. No. 271/2010 - European Communities (Conservation of Wild Birds (Rogerstown Estuary Special Protection Area 004015)) Regulations 2010.</i> NPWS (2013e) <i>Conservation Objectives: Rogerstown Estuary SPA 004015</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.</p>	<p>approximately 18.4km from the Proposed Scheme</p>
<p>Lambay Island SPA [004069] A009 Fulmar <i>Fulmarus glacialis</i> A017 Cormorant <i>Phalacrocorax carbo</i> A018 Shag <i>Phalacrocorax aristotelis</i> A043 Greylag Goose <i>Anser anser</i> A183 Lesser Black-backed Gull <i>Larus fuscus</i> A184 Herring Gull <i>Larus argentatus</i> A188 Kittiwake <i>Rissa tridactyla</i> A199 Guillemot <i>Uria aalge</i> A200 Razorbill <i>Alca torda</i> A204 Puffin <i>Fratercula arctica</i></p>	<p>approximately 21.5km from the Proposed Scheme</p>

European Site Name [Code] and its Qualifying interest(s)/Special Conservation Interest(s) (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme (as the crow flies)
<p><i>S.I. No. 242/2010 - European Communities (Conservation of Wild Birds (Lambay Island Special Protection Area 004069)) Regulations 2010.</i></p> <p>NPWS (2021f) <i>Conservation objectives for Lambay Island SPA [004069].</i> Generic Version 8.0. Department of Housing, Local Government and Heritage.</p>	
<p>The Murrough SPA [004186]</p> <p>A001 Red-throated Diver <i>Gavia stellata</i> 13.5km</p> <p>A043 Greylag Goose <i>Anser anser</i> 15-20km</p> <p>A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> 15-20km</p> <p>A050 Wigeon <i>Anas penelope</i></p> <p>A052 Teal <i>Anas crecca</i></p> <p>A179 Black-Headed Gull <i>Chroicocephalus ridibundus</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p>A195 Little Tern <i>Sterna albifrons</i></p> <p><i>S.I. No. 298/2011 - European Communities (Conservation of Wild Birds (The Murrough Special Protection Area 004186)) Regulations 2011</i></p> <p>NPWS (2021i) <i>Conservation objectives for The Murrough SPA [004186].</i> Generic Version 8.0. Department of Housing, Local Government and Heritage.</p>	<p>approximately 22.7km from the Proposed Scheme</p>
<p>Skerries Islands SPA [004122]</p> <p>A017 Cormorant <i>Phalacrocorax carbo</i></p> <p>A018 Shag <i>Phalacrocorax aristotelis</i></p> <p>A046 Brent Goose <i>Branta bernicla hrota</i></p> <p>A148 Purple Sandpiper <i>Calidris maritima</i></p> <p>A169 Turnstone <i>Arenaria interpres</i></p> <p>A184 Herring Gull <i>Larus argentatus</i></p> <p><i>S.I. No. 245/2010 - European Communities (Conservation of Wild Birds (Skerries Islands Special Protection Area 004122)) Regulations 2010.</i></p> <p>NPWS (2021g) <i>Conservation objectives for Skerries Islands SPA [004122].</i> Generic Version 8.0. Department of Housing, Local Government and Heritage.</p>	<p>Approximately 27.7km from the Proposed Scheme</p>
<p>Rockabill SPA [004114]</p> <p>A148 Purple Sandpiper <i>Calidris maritima</i></p> <p>A192 Roseate Tern <i>Sterna dougallii</i></p> <p>A193 Common Tern <i>Sterna hirundo</i></p> <p>A194 Arctic Tern <i>Sterna paradisaea</i></p> <p><i>S.I. No. 94/2012- European Communities (Conservation of Wild Birds (Rockabill Special Protection Area 004114)) Regulations 2012.</i></p> <p>NPWS (2013f) <i>Conservation objectives for Rockabill SPA [004114].</i> Generic Version 1.0. Department of Arts, Heritage and the Gaeltacht.</p>	<p>approximately 28.3km from the Proposed Scheme</p>



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