

**Lucan to City Centre
Core Bus Corridor
Scheme**
October 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 Lucan 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, Rockabill to Dalkey Islands 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 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:
 - *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision);

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 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 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 (Zol) of the Proposed Scheme, and therefore potentially at risk of significant effects. The Zol 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 Study

- 11 The desktop data sources used to inform the assessment presented in this report are as follows (accessed in May 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;

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.

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_2022_02 and SPA_ITM_2021_10.

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

- Information on the status of EU protected habitats and species in Ireland⁷;
- 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 November 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
Department of Housing, Local Government and Heritage (formerly Department of Culture, Heritage and the Gaeltacht)	30 July 2019 Ref. G Pre00165/2019	The Department recommend identification, description, and assessment of direct and indirect impacts of the Proposed Scheme on the following features: • 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	Addressed in NIS

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 Unpublished NPWS report.

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*.

Consultee	Phase / Date of Consultation	Issues Raised	Relevant Section of the AA where this is addressed
		referenced in Article 10 of the Habitats Directive.	
		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.	Addressed in NIS
		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 Department recommended that an Invasive Species Action Plan should form part of the planning application.	Addressed in NIS
		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
		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. To assess mitigations, the following tasks must be completed: - 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. Then, for each of the listed mitigation measures: - Provide evidence of how they will be secured and implemented and by whom. - Provide evidence of the degree of confidence in their likely success.	Addressed in NIS

Consultee	Phase / Date of Consultation	Issues Raised	Relevant Section of the AA where this is addressed
		- Provide a timescale, relative to the project or plan, when they will be implemented. Where residual impacts remain, further mitigation measures may be required: - 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.	
<i>Inland Fisheries Ireland (IFI)</i>	3 November 2020	The topics addressed in the IFI letter received on 3 November 2020 did not specifically mention Appropriate Assessment. Topics included: - Water bodies that will be crossed by the Proposed Scheme; - Fisheries importance of water bodies that will be crossed by the Proposed Scheme; - Scheme design in regard to structures at water crossings; - Baseline data; - Impact Assessment; and - Mitigation measures.	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. Confirmatory surveys were subsequently undertaken on the Proposed Scheme again in August 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 (S.I. 235/2022) 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. The presence / absence of these 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

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

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 is one suitable wintering bird site which would be subject to habitat loss, or disturbance at the very least by the Proposed Scheme. A field survey was carried out to confirm the suitability or presence of wintering birds at Liffey Gaels GAA playing pitches, located adjacent to the Chapelizod Bypass / Con Colbert Road (referred to as CBC0006WB001); which was deemed suitable for wintering birds and was surveyed twice a month, between the months of October 2020 and March 2021 during the 2020-2021 season, and again between November 2021 and March 2022 during the 2021-2022 season. 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. A description of the Proposed Scheme is provided to identify the potential ecological impacts.

3.1 Overview

- 28 The Proposed Scheme has an overall length of approximately 9.6km. The Proposed Scheme commences at Junction 3 of the N4 Lucan Road / Lucan bypass and is directed east towards the City Centre. From the R136 Ballyowen Road junction with the R835 Lucan Road the route runs east along the R835 Lucan Road to the roundabout serving the Lucan Retail Park and also the N4 Lucan Road eastbound on-slip. It is then routed via the N4 (passing the Liffey Valley Shopping Centre) as far as Junction 7 (M50) and via the R148 along Palmerstown Bypass, Chapelizod Bypass, Con Colbert Road, St John's Road West to Frank Sherwin Bridge, where it will join the prevailing traffic management regime on the South Quays.
- 29 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.
- 30 Moreover, pedestrian facilities will be upgraded and additional signalised crossings will be provided. In addition, urban realm works will be undertaken at key locations with higher-quality materials, planting, and street furniture provided to enhance the pedestrians' experience.
- 31 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;
 - Reconfiguration of connections to existing drainage infrastructure and connection of new drainage infrastructure into the existing surface water drainage network;
 - Installation of new bus stops and junction / roundabout modification;
 - Provision of new structures (bridges, retaining walls etc (e.g. replacement pedestrian and cyclist bridge over the N4 at Ballyowen Road; pedestrian bridge over the N4 at Liffey Valley Shopping Centre; construction of bus stop laybys including associated access ramps, retaining walls and a requirement to widen the existing Chapelizod Hill Road overbridge; and; retaining walls along the N4, including at Hermitage Golf Club, Liffey Valley Shopping Centre and Hermitage Medical Clinic))
 - Temporary and permanent land take at a number of key areas including:
 - i. Permanent land-take at Hermitage Golf Club- boundary wall and trees removed and relocated;
 - ii. Permanent land-take at the Hermitage Medical Clinic- trees removed, boundary wall removed and relocated;
 - iii. SDCC Council compound at Junction 2 N4- temporary landtake here for provision of a construction compound;
 - iv. Land take between the N4 National Road and the Old Lucan Road for provision of a construction compound;
 - v. Temporary land-take of amenity grassland north of the R148 Palmerstown Bypass, on the M50 Junction 7 to Con Colbert Road section of the Proposed Scheme for provision of a construction compound; and
 - vi. Temporary land-take of amenity grassland adjacent Liffey Gaels GAA Club for the provision of a construction compound
 - 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

- 32 The surface water drainage system for the Proposed Scheme will discharge to four surface water receptors: Liffey_170, Liffey_180, Liffey_190 and Liffey Estuary Upper, as well as existing combined sewers which ultimately discharge to the Liffey Estuary Lower via Ringsend WwTP. All drainage outfall discharges to surface waters represent point discharges. For the Proposed Scheme, there will be a net increase of 6,646m² 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.
- 33 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 (%)	
River Liffey (Liffey_170, Liffey_180; and, Liffey_190)	56,047	2,629	4.85	Oversized pipes, tree pits
	215,895	3,715	1.72	Oversized pipes, bioretention
	59,628	1,032	1.73	Oversized pipes, bioretention
River Camac (Camac_040)	N/A	No change	-	N/A
Liffey Estuary Upper	61,320	-730	-1.19	Oversized pipes, change from hardstanding to permeable grassed median
Grand Canal	N/A	No change	-	N/A
Liffey Estuary Lower	N/A	No change	-	N/A

3.3 Construction Compounds

- 34 Four Construction Compounds will be required along the length of the Proposed Scheme to facilitate construction:
- Construction Compound LU1a will be located immediately north-east of the N4 Junction 2, between the Old Lucan Road and the R113;
 - Construction Compound LU1b will be located between the N4 National Road and the Old Lucan Road;
 - Construction Compound LU2 will be located north of the R148 Palmerstown Bypass, on the M50 Junction 7 to Con Colbert Road section of the Proposed Scheme ; and,
 - Construction Compound LU3 will be located to the south-west of the junction of the R148 Chapelizod Bypass / R833 Con Colbert Road.
- 35 The locations of the Construction Compounds are shown in Images 2-5. These four Construction Compounds will be used to store materials, plant and equipment, to manage the activities from and to provide welfare facilities for construction personnel.
- 36 The Construction Compounds will be in place for the duration of the Construction Phase of the Proposed Scheme. The compounds will be dismantled and the sites returned to its existing condition on completion of the Construction Phase, with the likely exception of LU3. . It is intended that this area (LU3) will also be used as a Construction Compound on the Liffey Valley to City Centre Core Bus Corridor Scheme (Construction Compound LV3), pursuant to conditions imposed by An Bord Pleanála, should they grant approval. It is envisaged that the Construction Phases of the Proposed Scheme, and the Liffey Valley to City Centre Scheme will not overlap. Depending on the respective timing of the proposed schemes, the area

may continue to be used uninterrupted as a Construction Compound if the second scheme commences construction within a relatively short period of time after the first scheme finishing construction. Alternatively, in the eventuality that there is likely to be a substantial time period (e.g. greater than 1 year) between the Construction Phases of the two schemes, the NTA in discussion with the Local Authority will identify the most appropriate interim use of the area. When the area has ceased to be used as a construction compound it will be returned to its original condition by the appointed contractor for the second scheme.

Image 2 Location and Extent of Construction Compound LU1a

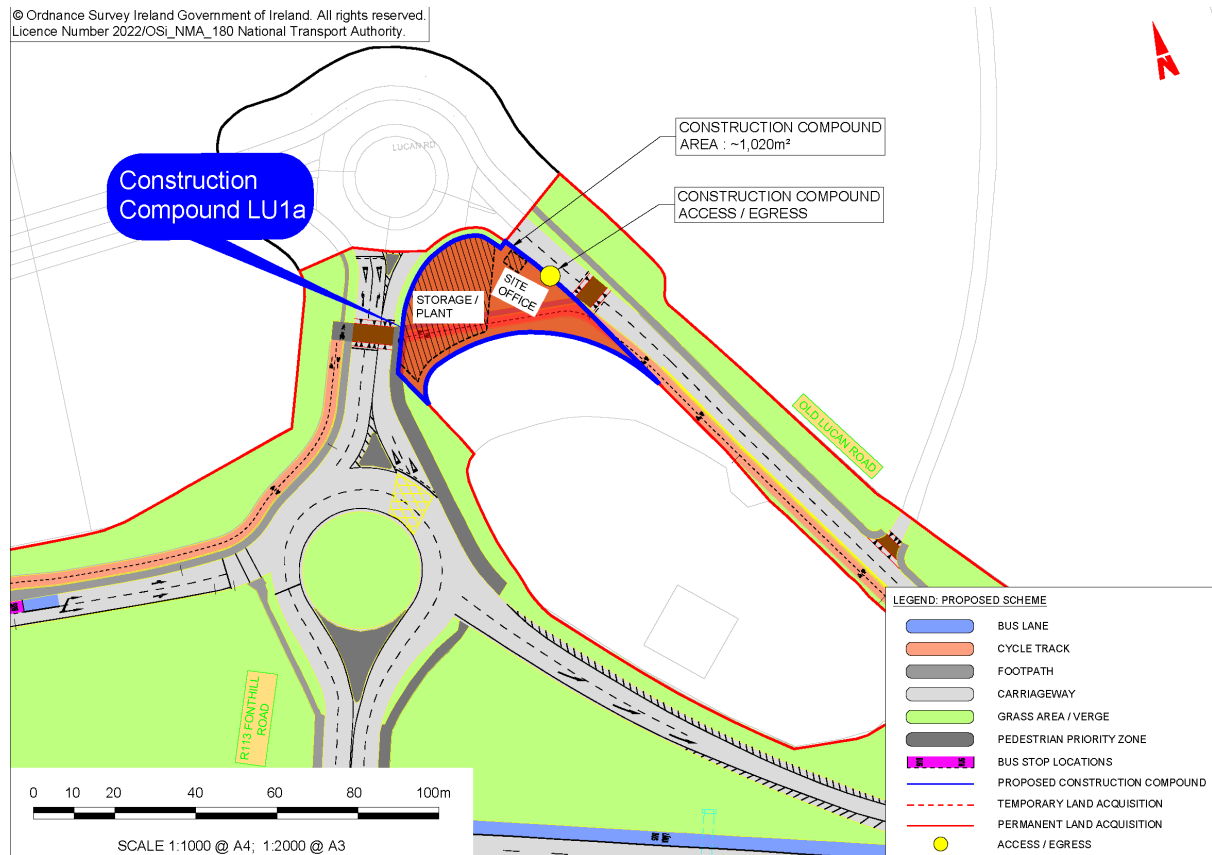


Image 3 Location and Extent of Construction Compound LU1b

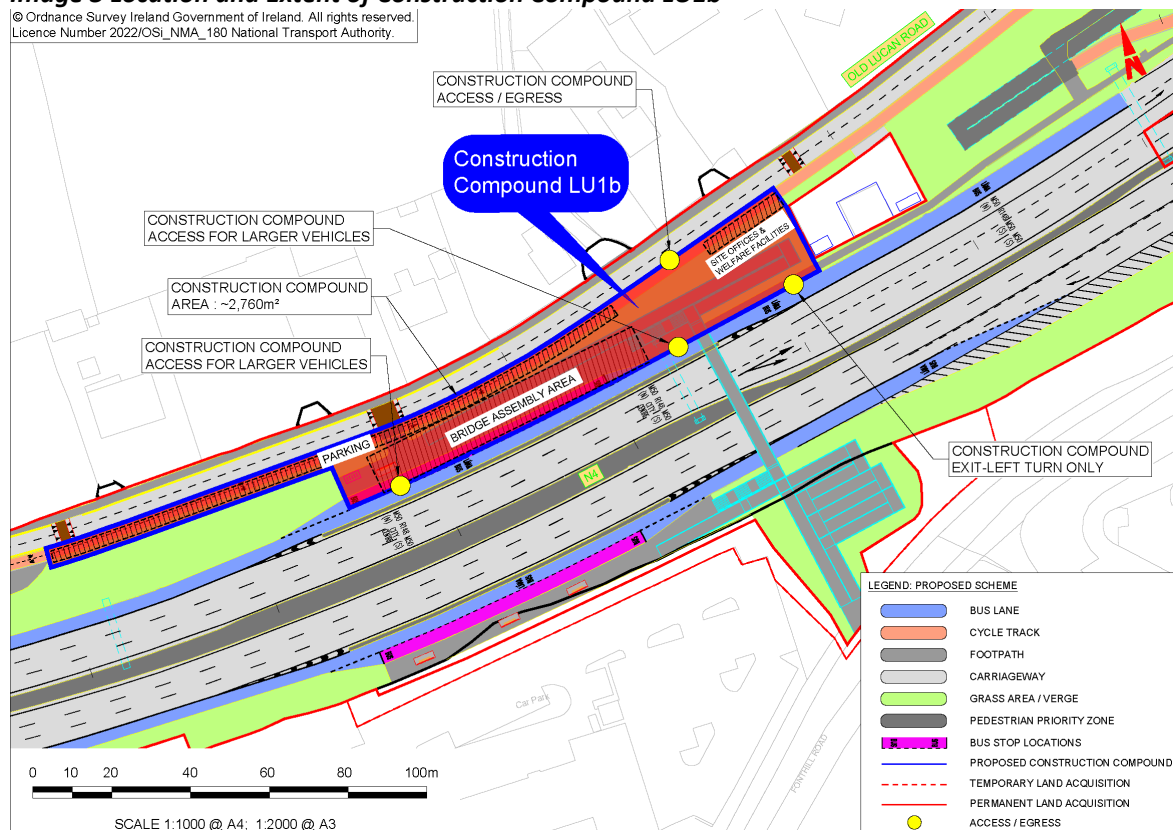


Image 4 Location and Extent of Construction Compound LU2

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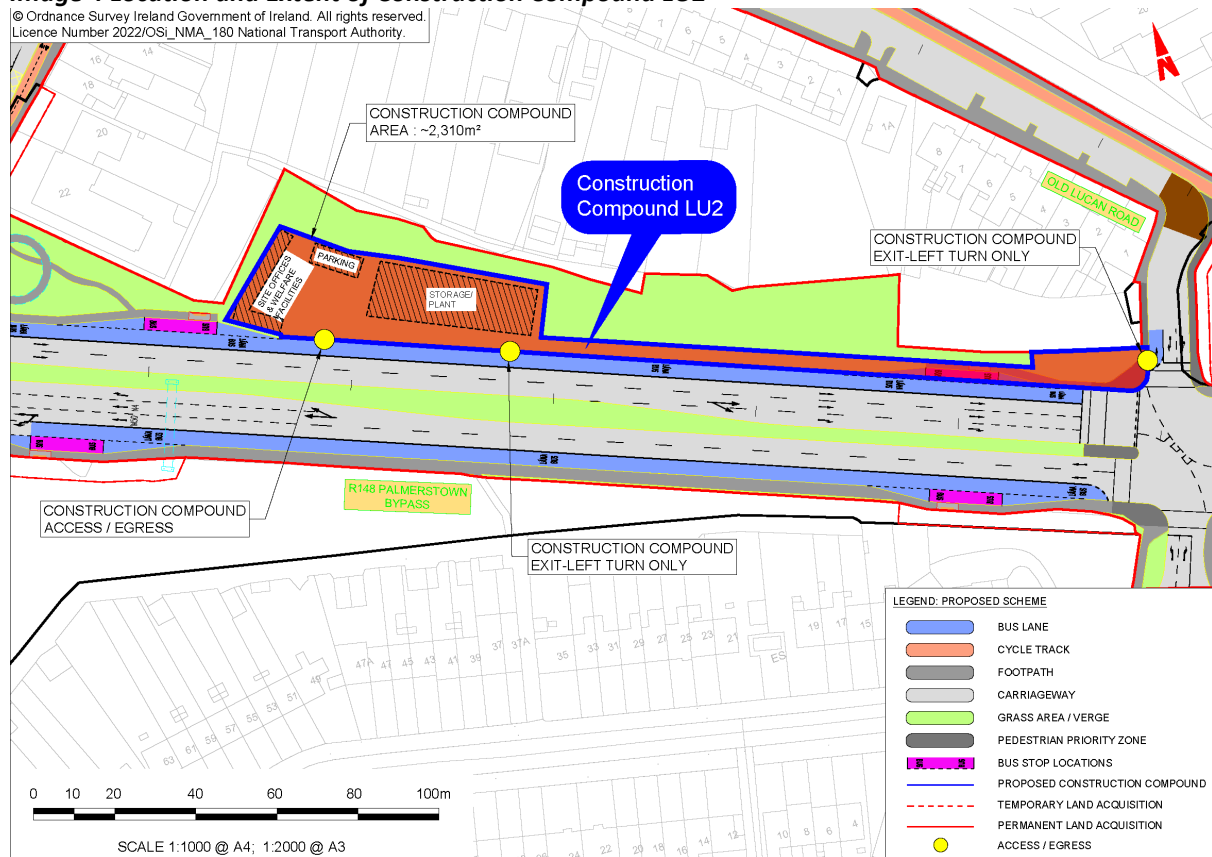
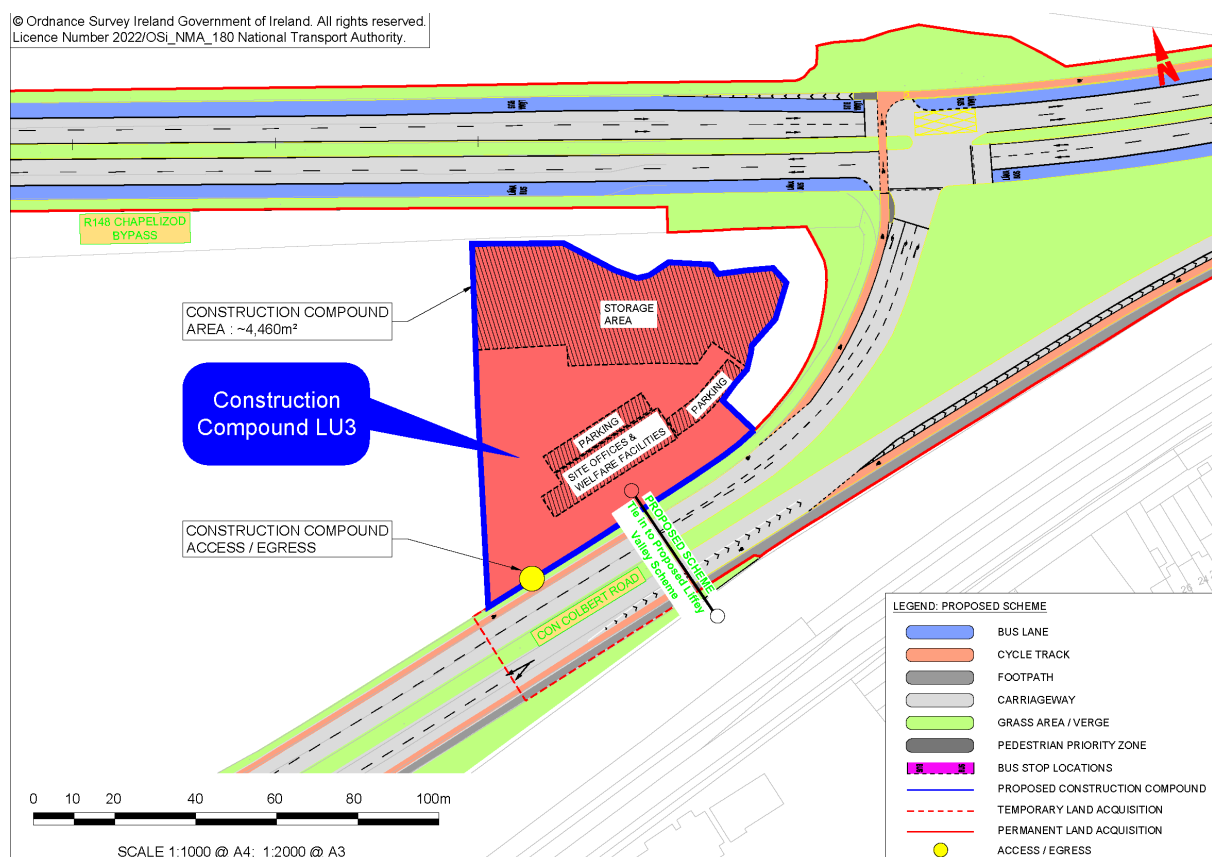


Image 5 Location and Extent of Construction Compound LU3

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3.4 Estimated Construction Phase Duration

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

3.5 Operational Phase

- 38 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

- 39 The Proposed Scheme will not overlap with any European site. The nearest European site to the Proposed Scheme is the Rye Water Valley / Carton SAC, which is located approximately 4.3km away.
- 40 The Proposed Scheme is hydrologically connected to South Dublin Bay and River Tolka Estuary SPA, as well as South Dublin Bay SAC. These European sites are located approximately 7km and 7.8km downstream of the point at which the River Camac is crossed by the Proposed Scheme, respectively.
- 41 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 River Annfield (Liffey_180), River Camac (Camac_040), Grand Canal, River Liffey (Liffey_180 and Liffey_190 sections), the Liffey Estuary Upper and Liffey Estuary Lower. In addition, the Rye Water Valley / Carton SAC is located upstream of the Proposed Scheme and will be hydrologically connected to the Proposed Scheme via the River Liffey.
- 42 There are twelve 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 Murrrough SPA.
- 43 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.
- 44 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

- 45 The Proposed Scheme is located in a highly urbanised environment, which in places runs parallel to the course of the River Liffey. Habitats present in the footprint of the Proposed Scheme include the following:
- Tilled lands (BC3);
 - Flower beds and borders (BC4);
 - Buildings and artificial surfaces (BL3);
 - Tidal rivers (CW2);

- Spoil and bare ground (ED2);
- Recolonising bare ground (ED3);
- Depositing / lowland rivers (FW2);
- Improved agricultural grassland (GA1);
- Amenity Grassland (Improved) (GA2);
- Dry meadows & grassy verges (GS2);
- Residential;
- (Mixed) broadleaved woodland (WD1);
- Mixed broadleaved / conifer woodland (WD2);
- Scattered trees and parkland (WD5);
- Hedgerows (WL1);
- Treelines (WL2);
- Scrub (WS1);
- Immature woodland (WS2); and
- Ornamental / non-native shrub (WS3).

46 The habitat type tidal rivers (CW2) corresponds with the Annex I habitat Estuaries [1130] and is present in the Liffey Estuary Upper, located adjacent to the terminus of the Proposed Scheme at Heuston Station. No direct works are proposed within the habitat. None of the other habitats listed above correspond to Annex I Qualifying Interest habitats.

3.6.3 Flora and Fauna Species

- 47 No records of any Annex II plant species were recorded within the footprint of the Proposed Scheme during field surveys.
- 48 There was one non-native invasive plant species, Japanese knotweed *Reynoutria japonica*, listed on the Third Schedule of the Birds and Habitats Regulations which was identified along the Proposed Scheme, but outside the red line boundary, along, and in areas adjacent to, St. Laurence's Road at five separate locations.
- 49 The desk study returned records of a total of 18 species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations across the wider study area (*i.e.* Grid Squares O03 and O13). These records include aquatic species associated with the Grand Canal and River Liffey such as water fern *Azolla filiculoides*, curly waterweed *Lagarosiphon major*, Canadian waterweed *Elodea canadensis* and Nuttall's waterweed *Elodea nuttallii*. Canadian waterweed *Elodea canadensis*, which is also noted from the wider vicinity was delisted as a third schedule species with the introduction of the European Communities (Birds and Natural Habitats) (Amendment) Regulations 2015 (SI 355/2015). There are also records of Himalayan balsam *Impatiens glandulifera* and Japanese knotweed *Reynoutria japonica* along the River Liffey, River Camac and Grand Canal. Records of Giant knotweed *Reynoutria sachalinensis* and giant-rhubarb *Gunnera tinctoria* exist from Waterstown Park and the Irish National War Memorial Park respectively. According to the NBDC online database, several records of bohemian knotweed *Reynoutria japonica x sachalinensis* = *R. x bohemica*, Brazilian giant-rhubarb *Gunnera manicata*, three-cornered garlic *Allium triquetrum*, parrot's-feather *Myriophyllum aquaticum*, curly waterweed *Lagarosiphon major* and rhododendron *Rhododendron ponticum* exist for several locations in close proximity to the Proposed Scheme. These species were not present within the footprint of the Proposed Scheme.

3.6.3.1 Otter

- 50 A desk study found that otter is known to occur within 1km of the Proposed Scheme, and across the wider study area along the River Liffey, the River Camac and the Grand Canal. The Proposed Scheme crosses the culverted River Camac at Heuston Station.
- 51 A recent dedicated otter survey¹² recorded otter activity along the River Liffey and the River Camac. A total of 19 signs were recorded along the River Liffey, most of which occurred south of the Phoenix Park at Chapelizod and along the quay walls of Dublin City Centre. A disused holt, several spraints and slides were recorded to the west of St Marys Hospital, Phoenix Park which is within 1km of the Proposed Scheme. A total of eight otter signs and moderate otter activity was recorded along the River Camac, including at Kilmainham Gaol / Richmond Park which lies within 1km of the Proposed Scheme.
- 52 No signs of otter, an Annex II species, were recorded during surveys within the footprint of the Proposed Scheme during multidisciplinary surveys.
- 53 The nearest European site for which this species is designated is the Wicklow Mountains SAC, which is located approximately 11.7km south of the Proposed Scheme. The Proposed Scheme is located within Liffey_SC_090 catchment. While the River Liffey and its tributaries are known to support otter, current guidance in respect of the hydrological distance that territorial otters roam suggest a range of approximately 7.5km for females and 21km for male otters (O'Neill *et al.*, 2009). Thus, watercourses in proximity to the Proposed Scheme are not considered to be associated with QI populations associated with the Wicklow Mountains SAC. Wicklow Mountains SAC is located within a different sub-catchment (Dodder_SC_010) to the Proposed Scheme (Liffey_SC_090). As such, populations of otter within the footprint of the Proposed Scheme are deemed not to be connected to the SAC population.

3.6.3.2 Marine mammals

- 54 The Proposed Scheme is hydrologically connected to Dublin Bay via the River Annfield (Liffey_180), River Camac (Camac_040), Grand Canal, River Liffey (Liffey_180 and Liffey_190 sections), the Liffey Estuary Upper and Liffey Estuary Lower.
- 55 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 II of the Habitats Directive. The nearest European site for which harbour seal and grey seal have been designated is Lambay Island SAC located approximately 23.2km from the Proposed Scheme. The nearest European site for which harbour porpoise has been designated is Rockabill to Dalkey Island SAC located approximately 13.3km from the Proposed Scheme.

3.6.3.3 Invertebrates

- 56 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 *Austropotamobius pallipes* were returned from the desktop review of the NBDC online database. The desk study returned records for white-clawed crayfish in the River Liffey, approximately 1km upstream of the Proposed Scheme at Leixlip Bridge. They have not been recorded downstream of Leixlip Bridge. Records for white-clawed crayfish also exist for the River Camac, approximately 4km upstream of the Proposed Scheme. Due to the underground nature of the Camac at the crossing point of the Proposed Scheme, there is no suitable habitat for white-clawed crayfish within the footprint of the Proposed Scheme, or downstream of the River Camac crossing point.

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.

- 57 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 8.9km east of the Proposed Scheme at North Bull Island in 2019 (NBDC 2022). 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, upland heaths and grasslands. Neither devil's-bit scabious nor these habitats were recorded within the footprint of the Proposed Scheme.

3.6.3.4 Kingfisher

- 58 A desk study found that kingfisher *Alcedo atthis*, an Annex I species, are known to occur within 1km of the Proposed Scheme and across the wider study area. In particular, the River Liffey is known to support a population of kingfisher¹³ and a record of kingfisher was returned from the desk study at Lucan Demesne. There are also records of kingfisher on the Grand Canal, which is hydrologically connected to the Proposed Scheme¹⁴.
- 59 Kingfisher were not recorded during multidisciplinary surveys within the footprint of the Proposed Scheme. The nearest European site for which this species is designated is River Boyne and River Blackwater SPA, which is located approximately 31.9km from the Proposed Scheme and lies within a separate catchment. Kingfisher populations within close proximity to the Proposed Scheme are not deemed to be SCI species.

3.6.3.5 Birds

- 60 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*.
- 61 The desk study returned records of a total of 47 regularly occurring wintering bird species across the study area (i.e., Grid Squares O03 and O13). Records included 11 species listed under Annex I of the Birds Directive, 37¹⁵ SCI species, and an additional two Red Listed and one Amber Listed species. This includes 28 species with breeding and wintering populations.
- 62 The majority of wintering birds identified in the desk study are typically found in coastal, estuarine and intertidal habitats including the Liffey Estuary and Dublin Bay. A desk-based review of lands surrounding the Proposed Scheme returned records of several SCI wintering bird species which may use inland amenity grassland feeding sites, including light-bellied Brent goose, lapwing, herring gull, black-headed gull and lesser black-backed gull.
- 63 A total of 15 wintering bird surveys were carried out for the Proposed Scheme at one location, namely CBC0006WB001 (at the Liffey Gaels GAA playing pitches adjacent to the Chapelizod Bypass / Con Colbert Road). Species identified included herring gull, black-headed gull and common gull. Geese droppings were recorded on site twice over the course of the surveys undertaken. **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 CBC0006WB001 during the wintering bird surveys (2020-2021 and 2021-2022 seasons)

¹³ DCC (2015) *Dublin City Biodiversity Action Plan 2015-2020*.

¹⁴ FERS Ltd. (2018). *Ecological survey of Clonburris Strategic Development Zone, Clondalkin, Co. Dublin*.

¹⁵ Note that some species listed on the Annex I of the Birds Directive are also SCI species.

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	
Common gull <i>Larus canus</i> (CM)	9 birds foraging on site (28/02/2022)	Amber (B/W)	-	-	N/A
Black-headed gull <i>Chroicocephalus ridibundus</i> (BH)	19 birds loafing on site (09/03/2022)	Amber (B/W)	-	✓	Five birds foraging in amenity grassland pitch to immediate west of transect location (16/03/2022)
Herring gull <i>Larus argentatus</i> (HG)	12 birds foraging on site (21/12/2021)	Amber (B/W)	-	✓	Five birds preening in amenity grassland pitch to immediate west of transect location (16/03/2022)

- 64 Transect CBC0006WB001 captured playing pitches comprised of amenity grassland. The site is maintained through cutting. Disturbance was noted as high on this site due to animals (dogs off leash and horse grazing/walking), evidence of vehicles (motocross and quad bikes) and public disorder activities (fireworks and large material littering) being frequent. Large numbers of gulls or other wintering birds were not recorded during surveys.
- 65 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	Site Peak Counts	Associated European sites within the Zol	1% of International Population	1% of National Population
Common gull <i>Larus canus</i> (CM)	9	-	16,400	n/a
Black-headed gull <i>Chroicocephalus ridibundus</i> (BH)	19	South Dublin Bay and River Tolka Estuary SPA North Bull Island SPA The Murrrough SPA	31,000	n/a
Herring Gull <i>Larus argentatus</i> (HG)	12	Ireland's Eye SPA Lambay Island SPA Skerries Islands SPA	14,400	n/a

- 66 A review of a study into light-bellied Brent goose inland feeding sites⁸ has identified no known SPA wintering bird feeding sites in the footprint of the Proposed Scheme. There are also no known inland wintering bird feeding sites within approximately 300m of the Proposed Scheme i.e., the disturbance Zol¹⁶. Droppings attributed to light-bellied Brent goose were recorded on two dates during the 2021-2022 survey season. A total of 294 light-bellied Brent goose droppings were recorded here on the 21/12/2021 and 16 light-bellied Brent goose droppings were recorded here on 28/02/2022. No goose droppings were recorded

¹⁶ 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.

here during the 2020-2021 survey season. This data suggests that the Liffey Gaels GAA pitches have recently started to be used on an infrequent basis by irregular numbers of light-bellied Brent geese, for foraging / loafing purposes. The inconsistency of recorded use of the site suggests that it is not a significant inland foraging resource for this SCI bird species and is more likely to be use sporadically / infrequently.

- 67 The desk study returned records of peregrine falcon *Falco peregrinus* and merlin *Falco columbarius*, two raptor species for which Wicklow Mountains SPA is designated, from within the wider vicinity of the Proposed Scheme. Records for peregrine exist for the Liffey Valley Park (Waterstown) area (Grid Ref: O0835) (2011) and Oblate Park area (Grid Ref: O1133) (2016), as well as the wider O13 10km grid square. Merlin is known to occur in the O03 10km grid square.
- 68 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.

3.6.4 Hydrology

- 69 The Proposed Scheme is hydrologically connected to Dublin Bay via the River Annfield (Liffey_180), River Camac (Camac_040), Grand Canal, River Liffey (Liffey_180 and Liffey_190 sections), the Liffey Estuary Upper and Liffey Estuary Lower.
- 70 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
Annfield River (Liffey_180)	Lies perpendicular to the Proposed Scheme along the southern boundary of the Hermitage Golf Club (river is culverted here).	No Q-value data available No risk score data available The River Annfield is a tributary of the River Liffey (See below).	It flows for approximately 1.1km, from the crossing point at the entrance to Hermitage Golf Club, until it reaches the River Liffey (See below). The River Liffey flows until it reaches the Liffey Estuary Upper waterbody (classified as "Potentially Eutrophic"). It then enters the Liffey Estuary Lower transitional waterbody (classified as "Intermediate") at Custom House Quay, which ultimately drains to Dublin Bay coastal waterbody (classified as "Unpolluted").
River Camac (Camac_040)	One existing crossing point on St. John's Road West, where the River Camac is culverted under the road.	Q3 Camac Close Emmet Road Poor	It enters the Liffey Estuary Upper (classified as "Potentially Eutrophic") adjacent to Heuston Station. It then enters the Liffey Estuary Lower transitional

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
		'At risk'	waterbody (classified as "Intermediate") at Custom House Quay, which ultimately drains to Dublin Bay coastal waterbody (classified as "Unpolluted").
Grand Canal	Hydrologically connected to the Proposed Scheme at Griffeen Valley Park via the receiving surface water system.	Q-Value Score not applicable Good 'Not at risk'	It flows into the Liffey Estuary Lower transitional waterbody (classified as "Intermediate") at Grand Canal Dock, which ultimately drains to Dublin Bay coastal waterbody (classified as "Unpolluted").
River Liffey (Liffey_180) (Liffey_190)	Located in close proximity to the Proposed Scheme in a number of locations including the Chapelizod Bypass. Surface waters from the Proposed Scheme will drain into the River Liffey via the existing surface water drainage network.	Q3 Liffey- Mill Lane Studio, Liffey- 1km u/s Chapelizod Bridge (Gleanaulin Park), Liffey- 0.2km d/s Chapelizod Bridge (Lynch's Lane) Poor 'At risk'	It flows alongside the Proposed Scheme, until it flows into the Liffey Estuary Upper at the War Memorial Garden (classified as "Potentially Eutrophic"). It then enters the Liffey Estuary Lower transitional waterbody (classified as "Intermediate") at Custom House Quay, which ultimately drains to Dublin Bay coastal waterbody (classified as "Unpolluted").
Liffey Estuary Upper	The terminus of the Proposed Scheme is located on the south side of the Frank Sherwin Bridge on Victoria Quay, adjacent to the Liffey Estuary Upper.	Q-Value Score not applicable Good 'At risk'	It flows into the Liffey Estuary Lower transitional waterbody (classified as "Intermediate") at Custom House Quay, which ultimately drains to Dublin Bay coastal waterbody (classified as "Unpolluted").
Liffey Estuary Lower	Hydrologically connected to the Proposed Scheme via the Liffey Estuary Upper and Grand Canal.	Q-Value Score not applicable Good 'At risk'	The Liffey Estuary Lower transitional waterbody (classified as "Intermediate") at Custom House Quay and Grand Canal Dock ultimately drains to Dublin Bay coastal waterbody (classified as "Unpolluted").
Dublin Bay	Hydrologically connected to the Proposed Scheme via the River Annfield, River Camac, River Liffey, Grand Canal and Liffey Estuaries (Upper and Lower)	Q-value score N/A Good 'Not at Risk'	N/A

3.6.5 Hydrogeology

- 71 The Geological Survey of Ireland (GSI) data indicates that underlying aquifer is a Locally Important Aquifer-Bedrock which is Moderately Productive only in Local Zones, and that the bedrock formation 1:500k underlying the Proposed Scheme is “Dark-grey argillaceous & cherty limestone and shale (Calp)” and a small area of “Pale-grey massive limestone” in the westernmost section of the scheme at the N4 Junction 3. “
- 72 The Proposed Scheme overlies one ground waterbody, namely the Dublin ground waterbody. Environmental data sourced from the EPA for this ground waterbody 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”.
- 73 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.

3.6.6 Soils & Geology

- 74 The 1:100,000 GSI bedrock geology map of the area indicates that the underlying bedrock along the Proposed Scheme is underlain by the Lucan Formation comprising 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.
- 75 The GSI Quaternary subsoils map shows the footprint of the Proposed Scheme is predominantly glacial tills derived from limestone. Additionally, there are areas of made ground (Urban), alluvial deposits, gravels and shallow bedrock. 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

- 76 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.
- 77 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.
- 78 Considering 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

- 79 The Proposed Scheme does not overlap with any European site. The nearest European site to the Proposed Scheme is the Rye Water Valley / Carton SAC, which is located 4.3km away. The nearest European site with a hydrological connection to the Proposed Scheme is also the Rye Water Valley / Carton, however this site is located approximately 6.5km upstream of the Proposed Scheme. South Dublin Bay and River Tolka Estuary SPA lies approximately 7km downstream of the point at which the River Camac is crossed by the Proposed Scheme. This is followed by South Dublin Bay SAC, which is located approximately 7.8km downstream of the proposed crossing point on the River Camac. Therefore, there is no potential for direct habitat loss and fragmentation to occur as a result of the Proposed Scheme. Habitat loss may occur indirectly as a consequence of severe habitat degradation arising from a reduction in water quality and /or a change to the hydrological regime, as described in the section below.
- 80 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 and The Murrough SPA).
- 81 A single potential inland feeding site within the footprint of the Proposed Scheme was surveyed to inform this assessment- CBC006WB001 Liffey Gaels GAA pitch, located between the Chapelizod Bypass and Con Colbert Road. This site will be lost, at least temporarily, during the construction period of the Proposed Scheme as it will be used as a Construction Compound to facilitate nearby works. According to the data collected during winter bird surveys undertaken here during both the 2020-2021 and 2021-2022 winter bird season, the CBC006WB001 site is not deemed to be a significant inland foraging resource for light-bellied Brent goose, given the infrequent nature of the recorded use of the site by this species. Likewise, numbers of black-headed gull and herring gull recorded here during surveys undertaken are not significant with respect to their national or international populations. Regardless, the Proposed Scheme will result (for the duration of the construction period) in the loss of a suitable inland feeding site for these SCI bird species. Therefore, there is potential 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.
- 82 Regarding the two raptor species for which Wicklow Mountains SPA are designated, according to the Scottish Natural Heritage Guidance¹⁷ during the breeding season the core foraging range for peregrine is estimated at 2km from the nest site, with the maximum recorded distance of 18km in Britain. During the winter season the mean foraging range reduces to 3km with the maximum range being 6.5km. Likewise, during the breeding season merlin are known to forage within 5km of the nest site, while in winter this generally reduces to 500m but can extend to 1.5km. Wicklow Mountains SPA lies approximately 11.7km south of the Proposed Scheme, which is well outside the typical foraging ranges for both peregrine and merlin. Therefore, likely significant effects on these two SCI bird species, as a result of *ex-situ* habitat loss / fragmentation, can be excluded.
- 83 With the exception of otter, the location of the Proposed Scheme and its construction will not result in any direct loss or fragmentation of Annex I habitats or supporting habitats to Annex II species, for which European sites are designated for within the ZoI of the Proposed Scheme. In terms of otter, while the Proposed Scheme does cross the River Camac, it does so at an existing crossing location within which the river is culverted. 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

- 84 The Proposed Scheme has the potential to result in habitat degradation / effects on QI / SCI species as a consequence of hydrological impacts during the both the construction and operation phases. The release

¹⁷ Scottish Natural Heritage (SNH) (2016) *Assessing Connectivity with Special Protection Areas (SPAs)*. June 2016 Version 3

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, which in turn can affect any species which utilise this aquatic environment. Otter use riparian habitats for foraging and commuting purposes and therefore would be potentially at risk of hydrological impacts. Wicklow Mountains SAC, which is located approximately 11.9km south of the Proposed Scheme (from the Liffey Estuary Lower), is the closest European site for which otter is the QI species. Typically, otter territories are within the range of 7.5km for females and up to 21km for males (Ó'Neill *et al.*, 2009). The Proposed Scheme only interacts with the following watercourses: Annfield River, River Camac, Grand Canal, River Liffey, Liffey Estuary Upper and Liffey Estuary Lower. Whilst these watercourses lie within the typical territorial ranges of otters, none of them share any hydrological connection to the Wicklow Mountains SAC it is the River Dodder which provides the key hydrological pathway between the Wicklow Mountains SAC and Dublin City. In addition, the Wicklow Mountains SAC lies within the Dodder_SC_010 subcatchment and the Proposed Scheme lies within the Liffey_SC_090 subcatchment. Given the separation which exists between the Wicklow Mountains SAC and the Proposed Scheme the otter population in the vicinity of the Proposed Scheme is regarded to be distinct to that of the SAC. Therefore, habitat degradation / effects on the QI otter population for Wicklow Mountains SAC, as a result of hydrological impacts by the Proposed Scheme, can be excluded.

- 85 However, the Proposed Scheme is hydrologically connected to Dublin Bay via the River Liffey (Liffey_180 and Liffey_190), River Camac (Camac_040), Liffey Estuary Upper and Liffey Estuary Lower, as well as a network of established combined sewer / surface water pipes which discharge via Ringsend WwTP. 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. 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. It should be noted that a highly substantial event / events would be required to generate such quantities, which is not deemed likely.
- 86 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). The QI habitats for which Howth Head SAC is designated (i.e. vegetated sea cliffs [1230] and European dry heaths [4030]) lie above the high water mark. Pollution is not regarded to be a threat or pressure which could potentially impact this SAC site (NPWS, 2021d)¹⁸ and is not regarded to be a significant threat / pressure to this habitat at a national level (Barron *et al.*, 2011)¹⁹. Therefore, the QI habitats of Howth Head SAC will be unaffected by a degradation in the surface water quality of the coastal waters of Dublin Bay and significant effects in that regard can be excluded.
- 87 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 marine mammal species that commute, forage and loaf in Dublin Bay i.e. birds associated with Skerries Islands SPA, Rockabill SPA, Lambay Island SPA, Ireland's Eye SPA, North Dublin Bay SPA, South Dublin Bay and River Tolka Estuary SPA, Baldoyle Bay SPA, Malahide Estuary

¹⁸ NPWS (2021d). *Natura 2000- Standard Data Form - Howth Head SAC [000202]*. Updated 12-2021.

¹⁹ Barron, S.J., Delaney, A., Perrin, P.M., Martin, J.R. & O'Neill, F.H. (2011). *National survey and assessment of the conservation status of Irish sea cliffs. Irish Wildlife Manuals No. 53*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

SPA, Rogerstown Estuary SPA, Dalkey Islands SPA, The 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, 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 Estuary SPA, Dalkey Islands SPA, The Murrough SPA, Rockabill to Dalkey Island SAC and Lambay Island SAC are undermined.

- 88 As the Proposed Scheme has the potential to result in habitat degradation and effects on SCI bird species and QI marine mammal species associated with European sites located in Dublin Bay, 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

- 89 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.
- 90 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. This Zol follows the professional judgement of the hydrogeology specialists.
- 91 As the Proposed Scheme does not have 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 no 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

- 92 Five areas of Japanese knotweed, a species listed on the Third Schedule of the (Birds and Natural Habitats) Regulations, are present within, or in close proximity to, the Proposed Scheme. In the absence of mitigation, there is potential for this species 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, in particular those habitats not permanently or regularly inundated by seawater, potentially outcompeting other native species and affecting species compositive and physical structure of the habitat. Therefore, it is possible that the spread / introduction of non-native invasive species could undermine the conservation objectives of these European sites.
- 93 It is not considered possible that the listed non-native invasive species could spread to European sites that are located a considerable distance from the outfall locations of the River Camac, Grand Canal, River Liffey, Liffey Estuary Upper and Liffey Estuary Lower and separated by a large marine waterbody (i.e. Howth Head SAC, Howth Head Coast SPA, Rockabill to Dalkey Island SAC, Lambay Island SAC, Ireland's Eye SPA, The Murrough SPA and Dalkey Islands SPA).
- 94 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 non-native 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

- 95 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 may lead to a 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.
- 96 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. There are no European sites present within these distances.
- 97 As such the Proposed Scheme does not have the potential to result in habitat degradation of the Qualifying / Special Conservation Interest species / habitats of any European sites, as a result of air quality impacts, during either the Construction or Operational Phase of the Proposed Scheme. There is, therefore, no potential for in combination effects to occur in that regard.

3.7.6 Disturbance and displacement impacts

- 98 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 250m²⁰. For wintering birds, disturbance effects would not be expected to extend beyond a distance of approximately 300m²¹, as noise levels associated with general construction activities would attenuate to close to background levels at that distance. There are no European sites within the disturbance Zol of the Proposed Scheme.
- 99 There are a number of coastal 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, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, 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). Suitable inland foraging / roosting sites, which these bird species utilise, are located within the potential Zol of the Proposed Scheme (See Section 2.5.2.3). Therefore, there is potential for the Proposed Scheme to result in disturbance / displacement impacts on SCI populations associated with European sites.

²⁰ This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (2006) and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (2005)) 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.

²¹ 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.

- 100 Regarding the raptor species, for which Wicklow Mountains SPA are designated (e.g. merlin and peregrine), a study by Ruddock & Whitfield²², which included a review of previous studies in this area, offers no definitive distance after which disturbance to merlin is not significant but indicates that an upper limit of 300-500m may be sufficient in the case of breeding or nesting merlin. Likewise a distance of 500-750m is likely to be sufficient for breeding peregrines. Adopting a precautionary approach, based on the available data regarding disturbance distances for merlin and peregrine, it can be concluded that disturbance to these bird species would be most likely to occur within 1km (i.e. the disturbance Zol is 1km). There are no European sites within the disturbance Zol; the next nearest European site to the proposed development is 4.3km away. There are also no habitat areas within the disturbance Zol of the proposed development that support populations of the SCI species for which Wicklow Mountains SPA is designated. Considering the above, there is no potential for the Proposed Scheme to result in disturbance / displacement impacts on the SCI species for which Wicklow Mountains SPA is designated.²³
- 101 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 River Liffey and the Grand Canal. 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 catchment²⁴. The nearest SPA for which kingfisher has been designated is the River Boyne and Blackwater SPA, which is located approximately 31.9km away. Therefore, kingfisher present in the vicinity of the Proposed Scheme are not associated with an SPA population.
- 102 Although no signs of otter were recorded during multidisciplinary field surveys of the Proposed Scheme, the River Liffey, River Camac and the Grand Canal are known to support otter, an Annex II and IV mammal species. The nearest SAC to the Proposed Scheme for which otter has been designated is Wicklow Mountains SAC which is located approximately 11.9km south of the Proposed Scheme. Research carried out by Ó'Néill *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. The Proposed Scheme only interacts with the following watercourses: Annfield River, River Camac, Grand Canal, River Liffey, Liffey Estuary Upper and Liffey Estuary Lower. Whilst these watercourses lie within the typical territorial ranges of otters, none of them share any hydrological connection to the Wicklow Mountains SAC- it is the River Dodder which provides the key hydrological pathway between the Wicklow Mountains SAC and Dublin City. In addition, the Wicklow Mountains SAC lies within the Dodder_SC_010 subcatchment and the Proposed Scheme lies within the Liffey_SC_090 subcatchment. Given the separation which exists between the Wicklow Mountains SAC and the Proposed Scheme the otter population in the vicinity of the Proposed Scheme is regarded to be distinct to that of the SAC. Therefore, disturbance and displacement impacts on the QI otter population for Wicklow Mountains SAC, as a result of the Proposed Scheme, can be excluded.
- 103 Although marine mammals associated with European sites may commute and forage within the Liffey Estuary, it is not considered to be likely that there will be any impacts on these species as a result of the Proposed Scheme as the terminus at Heuston Station located approximately 9.9km upstream of Dublin Bay, in a highly urbanised environment and where water levels can drop diurnally reducing the likelihood

²² Ruddock, M. & Whitfield, D.P. (2007). *A Review of Disturbance Distances in Selected Bird Species*. A report from Natural Research Projects) Ltd. to Scottish Natural Heritage. Available at: <https://www.nature.scot/sites/default/files/2018-05/A%20Review%20of%20Disturbance%20Distances%20in%20Selected%20Bird%20Species%20-%20Natural%20Research%20Ltd%20-%202007.pdf> [Accessed 24/05/2022]

²³ There is a need to consider use of habitat areas outside of an SPA by SCI bird species where they support the SCI populations and the site's conservation objectives. These habitat areas can comprise alternative roosting sites, foraging areas, staging grounds or migration routes and can, but not necessarily exclusively, be situated within the immediate hinterland of the SPA, or in areas ecologically connected to it.

²⁴ 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/>

of marine mammals venturing this far up-river. In addition to this, the scale of works proposed in the vicinity of the Liffey Estuary are considered to be minor.

- 104 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

- 105 The *ex-situ* habitat loss, hydrological, non-native invasive species 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 QIs / SCIs of a European site(s). Therefore, the potential for the Proposed Scheme to have significant effects on a European site(s) cannot be excluded.
- 106 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 Proposed Scheme 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?
Habitat loss No European sites are at risk of direct habitat loss impacts There is potential for loss of <i>ex situ</i> inland feeding sites used by SCI wintering bird species.	Yes There are European sites at risk of <i>ex situ</i> habitat losses: Malahide Estuary SPA, Baldoyle Bay SPA, Rogerstown Estuary SPA, North Bull Island SPA, South Dublin Bay and River Tolka 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 Habitats and species downstream of the Proposed Scheme and the associated surface water drainage discharge points, and downstream of offsite wastewater treatment plants.	Yes. There are European sites at risk of hydrological effects associated with the Proposed Scheme, namely: North Dublin Bay SAC, South Dublin Bay 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, 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 Murrough SPA.
Habitat degradation as a result of hydrogeological impacts Groundwater-dependant habitats, and the species those habitats support, in the local area that lie downgradient of the Proposed Scheme.	No There are no European sites at risk of hydrogeological effects associated with the Proposed Scheme
Habitat degradation as a result of introducing / spreading non-native invasive species	Yes.

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?
Habitat areas within, adjacent to, and potentially downstream of the Proposed Scheme.	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 downstream European sites from the spread / introduction of non-native invasive species: South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC, and North Bull Island SPA.
Air Quality impacts Potentially up to 50m from the Proposed Scheme boundary and 500m from the Construction Compound at Construction phase, and up to 200 metres at Operation Phase.	No. There are no European sites at risk of air quality effects associated with the Proposed Scheme
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 are no European sites within the potential zone of influence of disturbance effects associated with the construction or operation of the Proposed Scheme. However, there is one <i>ex situ</i> inland feeding site 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.

3.8 In-Combination Effects

- 107 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.
- 108 There are 16 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, Rockabill to Dalkey Island SAC, Lambay Island SAC, Howth Head Coast 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.
- 109 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.
- 110 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.
- 111 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 ²⁵
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) Report 2021
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
• 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
• 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 2022-2028
Biodiversity Action Plan for South Dublin County (2020-2026)- Draft for public consultation
South Dublin County Council Climate Change Action Plan 2019-2024
• Tallaght Town Centre Local Area Plan 2020

²⁵ Together the National Development Plan and the National Framework are referred to as Project Ireland 2040: Building Ireland’s Future

- Liffey Valley Town Centre Local Area Plan 2008

Dún Laoghaire- Rathdown Development Plan 2022-2028

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 2017-2023

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
- 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
- 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
- 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
- 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 local traffic movements.
- 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.
- Snugborough Interchange Upgrade
- Park development project at the Racecourse Park
- 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
- 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
- Blackrock / Belfield 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

- 112 There is the potential for developments listed in **Table 8**, or those implemented under a range of land use and other plans listed in **Table 7**, 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.
- 113 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.
- 114 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, non-native invasive species, air quality, and disturbance and displacement effects) which could act in combination with similar effects and pathways arising from the various plans.
- 115 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, 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 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 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; 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 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 habitat loss / fragmentation, hydrological impacts, non-native invasive species, and disturbance and displacement impacts: North Dublin Bay SAC; South Dublin Bay SAC; Rockabill to Dalkey Island SAC; Lambay Island 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.

- 116 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.
- 117 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 16 no. European sites (4 no. SACs and 12 no. SPAs) and, consequently, the preparation of a Natura Impact Statement (NIS).

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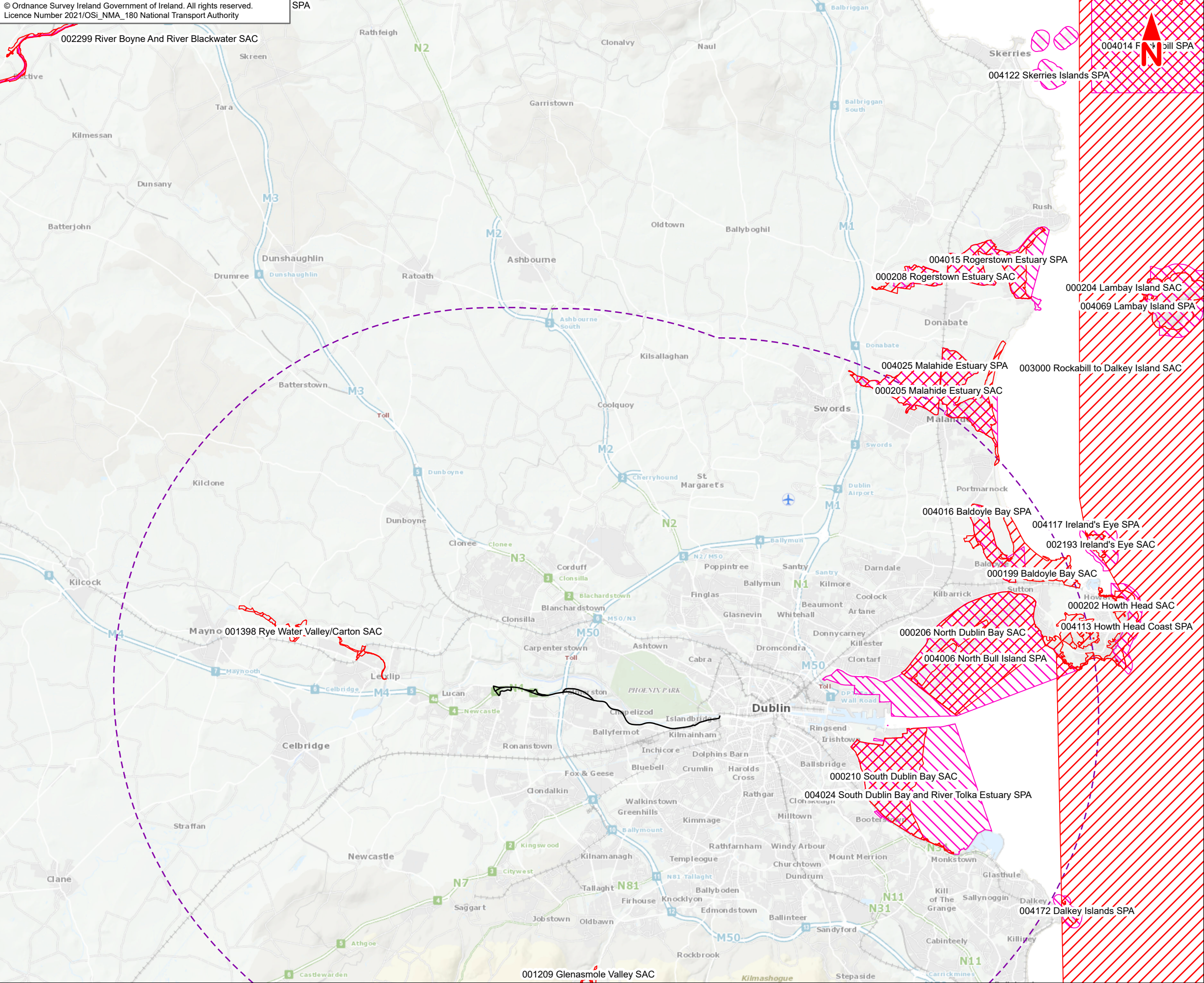
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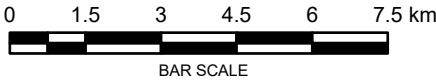
Figure 1
European Sites
in the Vicinity
of the Proposed
Scheme



Legend :

- Lucan to City Centre
- Core Bus Corridor Scheme
- 15km from Proposed Scheme
- Special Area of Conservation
- Special Protection Areas

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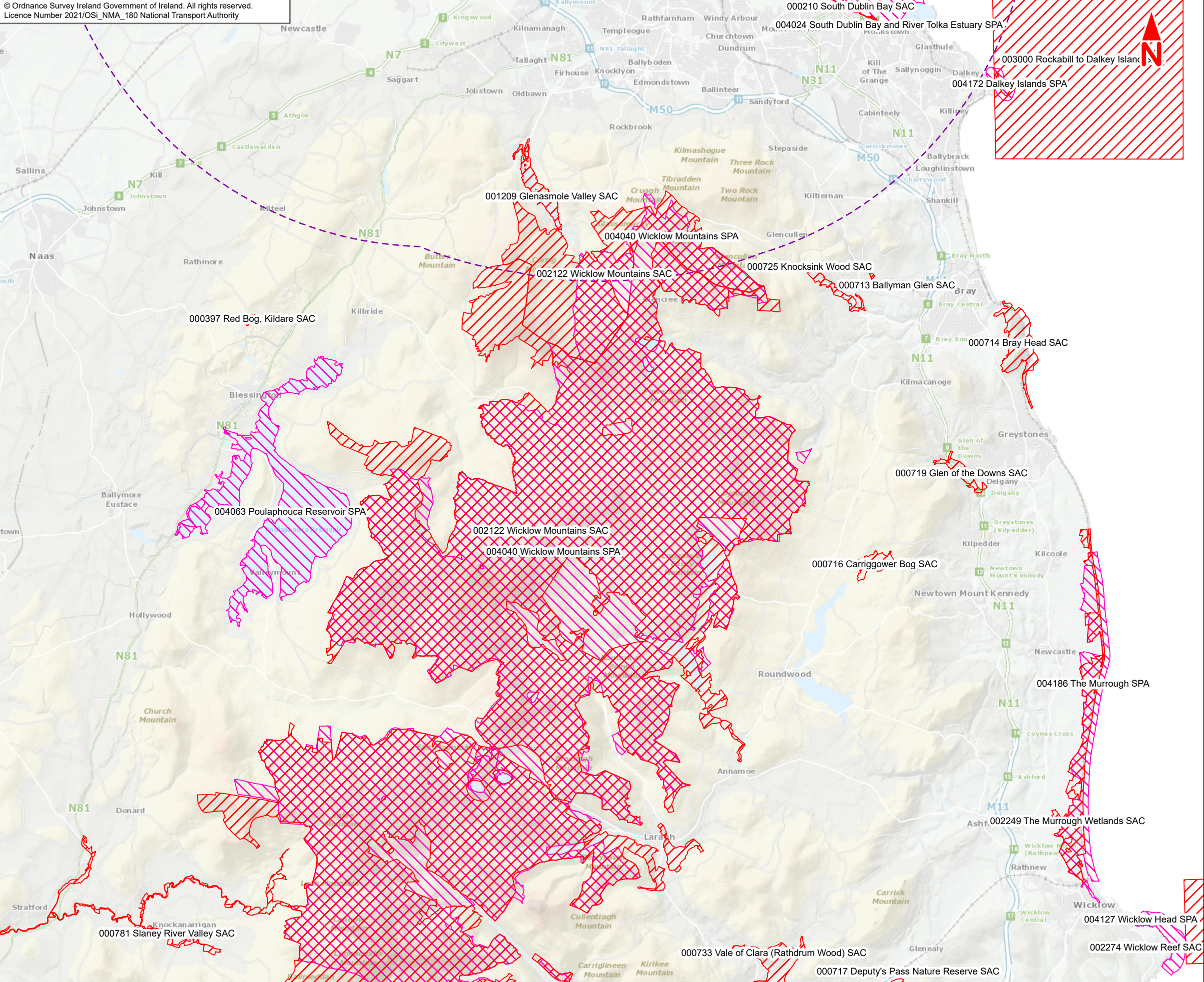


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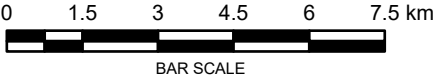
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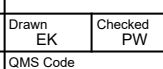
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Drawing Title Lucan to City Centre Core Bus Corridor Scheme Figure 1 European sites in the Vicinity of the Proposed Scheme			
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- Legend :**
- Lucan to City Centre
 - Core Bus Corridor Scheme
 - - - 15km from Proposed Scheme
 - Special Area of Conservation
 - Special Protection Areas

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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 Scheme²⁶

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)	
Rye Water Valley / Carton SAC [001398] 1014 Narrow-mouthed Whorl Snail <i>Vertigo angustior</i> 1016 Desmoulin's Whorl Snail <i>Vertigo moulinsiana</i> 7220 Petrifying springs with tufa formation (Cratoneurion)* <i>S.I. No.494/2018 – European Union Habitats (Rye Water Valley / Carton Special Area of Conservation 001398) Regulations 2018</i> NPWS (2021a) <i>Conservation Objectives: Rye Water Valley / Carton SAC 001398</i> . Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage	Approximately 4.2km from the Proposed Scheme
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 <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.	Approximately 5.3km from the Proposed Scheme
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	Approximately 7.4km from the Proposed Scheme

²⁶ 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)
<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.	
Rockabill to Dalkey Island SAC [003000] 1170 Reefs 1351 Harbour porpoise <i>Phocoena phocoena</i> <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.	Approximately 13.4km from the Proposed Scheme
Howth Head SAC [000202] 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths <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.	Approximately 13.1km from the Proposed Scheme
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 Calaminarian grasslands of the Violetalia calaminariae 6230 Species-rich Nardus 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 (Androsacetalia alpinae and Galeopsietalia ladani) 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) 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.	Approximately 11.6km from the Proposed Scheme

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)
Knocksink Wood SAC [000725] 7220 Petrifying Springs with Tufa formation (Cratonuerion)* 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)* <i>S.I. No. 93/2019- European Union Habitats (Knocksink Wood Special Area of Conservation 000725) Regulations 2019</i> NPWS (2021b) <i>Conservation objectives for Knocksink Wood SAC [000725].</i> Version 1.0. Department of Housing, Local Government and Heritage.	Approximately 15.8km from the Proposed Scheme
Ballyman Glen SAC [000713] 7220 Petrifying springs with tufa formation (Cratoneurion)* 7230 Alkaline fens <i>S.I. No. 92/2019- European Union Habitats (Ballyman Glen Special Area of Conservation 000713) Regulations 2019</i> NPWS (2019d) <i>Conservation objectives: Ballyman Glen SAC [000713].</i> Version 1.0. Department of Housing, Local Government and Heritage.	Approximately 17.5km from the Proposed Scheme
Baldoyle Bay SAC [000199] 1140 Mudflats and sandflats not covered by seawater at low tide 1310 <i>Salicornia</i> and other annuals colonizing mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) <i>S.I. No. 472/2021 – European Union Habitats (Baldoyle Bay Special Area of Conservation 000199) Regulations 2021</i> 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.	Approximately 11.9km from the Proposed Scheme
Glenasmole Valley SAC [001209] 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 6410 <i>Molinia meadows</i> on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 7220 Petrifying springs with tufa formation (Cratoneurion)* <i>S.I. No. 345/2021 – European Union Habitats (Glenasmole Valley Special Area of Conservation 001209) Regulations 2021</i> NPWS (2021c) <i>Conservation objectives for Glenasmole Valley SAC [001209].</i> Version 1.0. Department of Housing, Local Government and Heritage.	Approximately 9.7km from the Proposed Scheme
Bray Head SAC [002193] 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths <i>S.I. No. 620/2017 - European Union Habitats (Bray Head Special Area of Conservation 000714) Regulations 2017</i>	Approximately 21.4km from the Proposed Scheme

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)
NPWS (2017b) <i>Conservation objectives: Bray Head SAC [000714]</i> . Version 1.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	
Ireland's Eye SAC [002193] 1220 Perennial vegetation of stony banks 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts <i>S.I. No. 501/2017 - European Union Habitats (Ireland's Eye Special Area of Conservation 002193) Regulations 2017</i> NPWS (2017c) <i>Conservation objectives: Ireland's Eye SAC [002193]</i> . Version 1.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	Approximately 16.1km from the Proposed Scheme
Malahide Estuary SAC [000205] 1140 Mudflats and sandflats not covered by seawater at low tide 1310 <i>Salicornia</i> and other annuals colonising mud and sand 1320 <i>Spartina</i> swards (<i>Spartinion maritimae</i>) ²⁷ 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* <i>S.I. No. 91/2019 - European Union Habitats (Malahide Estuary Special Area of Conservation 000205) Regulations 2019</i> NPWS (2013d) <i>Conservation Objectives: Malahide Estuary SAC 000205</i> . Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 14.1km from the Proposed Scheme
Rogerstown Estuary SAC [000208] 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1310 <i>Salicornia</i> and other annuals colonising mud and sand 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*	Approximately 18km from the Proposed Scheme

²⁷ 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)
<i>S.I. No. 286/2018 European Union Habitats (Rogerstown Estuary Special Area of Conservation 000208) Regulations 2018</i> NPWS (2013e) Conservation Objectives: Rogerstown Estuary SAC 000208. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	
Lambay Island SAC [000204] 1170 Reefs 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 1364 Grey seal <i>Halichoerus grypus</i> 1365 Harbour seal <i>Phoca vitulina</i> <i>S.I. No. 294/2019 - European Union Habitats (Lambay Island Special Area of Conservation 000204) Regulations 2019</i> NPWS (2013f) Conservation Objectives: Lambay Island SAC 000204. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 23.1km from the Proposed Scheme
Special Protection Area (SPA)	
South Dublin Bay and River Tolka Estuary SPA [004024] A046 Light-bellied Brent Goose <i>Branta bernicla hrota</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> A144 Sanderling <i>Calidris alba</i> A149 Dunlin <i>Calidris alpina</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A162 Redshank <i>Tringa totanus</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i> A999 Wetland and Waterbirds <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> NPWS (2015a) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 4.3km from the Proposed Scheme
North Bull Island SPA [004006] A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A052 Teal <i>Anas crecca</i> A054 Pintail <i>Anas acuta</i> A056 Shoveler <i>Anas clypeata</i> A130 Oystercatcher <i>Haematopus ostralegus</i>	Approximately 7.4km from the Proposed Scheme

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)
A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A144 Sanderling <i>Calidris alba</i> A149 Dunlin <i>Calidris alpina</i> A156 Black-tailed Godwit <i>Limosa limosa</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A160 Curlew <i>Numenius arquata</i> A162 Redshank <i>Tringa totanus</i> A169 Turnstone <i>Arenaria interpres</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A999 Wetlands & Waterbirds <i>S.I. No. 211/2010 - European Communities (Conservation of Wild Birds (North Bull Island Special Protection Area 004006)) Regulations 2010.</i> NPWS (2015b) <i>Conservation Objectives: North Bull Island SPA 004006</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	
Dalkey Islands SPA [004172] A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i> <i>S.I. No. 238/2010 - European Communities (Conservation of Wild Birds (Dalkey Islands Special Protection Area 004172)) Regulations 2010</i> NPWS (2022a) <i>Conservation objectives for Dalkey Islands SPA [004172]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage	Approximately 15.1km from the Proposed Scheme
Wicklow Mountains SPA [004040] A098 Merlin <i>Falco columbarius</i> A103 Peregrine <i>Falco peregrinus</i> <i>S.I. No. 586/2012 - European Communities (Conservation of Wild Birds (Wicklow Mountains Special Protection Area 004040)) Regulations 2012.</i> NPWS (2022b) <i>Conservation objectives for Wicklow Mountains SPA [004040]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage.	Approximately 11.6km from the Proposed Scheme
Baldoyle Bay SPA [004016] A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A137 Ringed Plover <i>Charadrius hiaticula</i> A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis squatarola</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A999 Wetland and Waterbirds	Approximately 12.3km from the Proposed Scheme

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)
<i>S.I. No. 275/2010 - European Communities (Conservation of Wild Birds (Baldoyle Bay Special Protection Area 004016)) Regulations 2010.</i> NPWS (2013g) <i>Conservation Objectives: Baldoyle Bay SPA 004016. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	
Howth Head Coast SPA [004113] A188 Kittiwake <i>Rissa tridactyla</i> <i>S.I. No. 185/2012 - European Communities (Conservation of Wild Birds (Howth Head Coast Special Protection Area 004113)) Regulations 2012.</i> NPWS (2022c) <i>Conservation objectives for Howth Head Coast SPA [004113].</i> Generic Version 9.0. Department of Housing, Local Government and Heritage.	Approximately 15.8km from the Proposed Scheme
Ireland's Eye SPA [004117] A017 Cormorant <i>Phalacrocorax carbo</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> <i>S.I. No. 240/2010 - European Communities (Conservation of Wild Birds (Ireland's Eye Special Protection Area 004117)) Regulations 2010.</i> NPWS (2022d) <i>Conservation objectives for Ireland's Eye SPA [004117].</i> Generic Version 9.0. Department of Housing, Local Government and Heritage	Approximately 15.9km from the Proposed Scheme
Malahide Estuary SPA [004025] A005 Great Crested Grebe <i>Podiceps cristatus</i> A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A054 Pintail <i>Anas acuta</i> A067 Goldeneye <i>Bucephala clangula</i> A069 Red-breasted Merganser <i>Mergus serrator</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A140 Golden Plover <i>Pluvialis apricaria</i> 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 <i>S.I. No. 285/2011 - European Communities (Conservation of Wild Birds (Malahide Estuary Special Protection Area 004025)) Regulations 2011.</i> NPWS (2013h) <i>Conservation Objectives: Malahide Estuary SPA 004025. Version 1.</i> National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 14.1km from the Proposed Scheme

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)
Rogerstown Estuary SPA [004015] A043 Greylag Goose <i>Anser anser</i> A046 Light-bellied 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 <i>S.I. No. 271/2010 - European Communities (Conservation of Wild Birds (Rogerstown Estuary Special Protection Area 004015) Regulations 2010.</i> NPWS (2013i) <i>Conservation Objectives: Rogerstown Estuary SPA 004015</i>. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 18.4km from the Proposed Scheme
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> <i>S.I. No. 242/2010 - European Communities (Conservation of Wild Birds (Lambay Island Special Protection Area 004069)) Regulations 2010.</i> NPWS (2022e) <i>Conservation objectives for Lambay Island SPA [004069]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage	Approximately 23.1km from the Proposed Scheme
The Murrough SPA [004186] A001 Red-throated Diver <i>Gavia stellata</i> 13.5km A043 Greylag Goose <i>Anser anser</i> 15-20km A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> 15-20km A050 Wigeon <i>Anas penelope</i> A052 Teal <i>Anas crecca</i> A179 Black-Headed Gull <i>Chroicocephalus ridibundus</i> A184 Herring Gull <i>Larus argentatus</i>	Approximately 31.5km from the Proposed Scheme

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)
A195 Little Tern <i>Sterna albifrons</i> A999 Wetland and Waterbirds <i>S.I. No. 298/2011 - European Communities (Conservation of Wild Birds (The Murrough Special Protection Area 004186)) Regulations 2011</i> NPWS (2022f) <i>Conservation objectives for The Murrough SPA [004186]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage.	
Skerries Islands SPA [004122] A017 Cormorant <i>Phalacrocorax carbo</i> A018 Shag <i>Phalacrocorax aristotelis</i> A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A148 Purple Sandpiper <i>Calidris maritima</i> A169 Turnstone <i>Arenaria interpres</i> A184 Herring Gull <i>Larus argentatus</i> <i>S.I. No. 245/2010 - European Communities (Conservation of Wild Birds (Skerries Islands Special Protection Area 004122)) Regulations 2010.</i> NPWS (2022g) <i>Conservation objectives for Skerries Islands SPA [004122]</i>. Generic Version 9.0. Department of Housing, Local Government and Heritage.	Approximately 28.1km from the Proposed Scheme
Rockabill SPA [004114] A148 Purple Sandpiper <i>Calidris maritima</i> A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i> <i>S.I. No. 94/2012- European Communities (Conservation of Wild Birds (Rockabill Special Protection Area 004114)) Regulations 2012.</i> NPWS (2013j) <i>Conservation objectives for Rockabill SPA [004114]</i>. Generic Version 1.0. Department of Arts, Heritage and the Gaeltacht.	Approximately 28.8km from the Proposed Scheme



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