Bray to City Centre Core
Bus Corridor Scheme

Appropriate Assessment Report

Screening Report

BUS CONNECTS

SUSTAINABLE TRANSPORT FOR A BETTER CITY.

Table of Contents

List of Images:

List of Figures:

List of Appendices:

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 Bray 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 (NTA). 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], 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 between Bray and the City Centre.

2 Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural 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 Natural 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) in view of the conservation objectives of the following site(s): **South Dublin Bay SAC, Bray Head SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, Howth Head SAC, Lambay Island SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Howth Head Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill 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 Screening for Development Management: OPR Practice Note PN01 (OPR, 2021);
- *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 in Relation to Natura 2000 sites: Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2021);
- *Communication from the Commission on the precautionary principle* (European Commission, 2000);
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC* (European Commission, 2019); and
- EC (2013) *Interpretation Manual of European Union Habitats*. Version EUR 28. European Commission.

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 significant 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 a source-pathway-receptor link does not mean that significant effects will arise. Rather, 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

[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.

prevailing winds for airborne pollution) and the characteristics of the receptor (e.g. the sensitivities of the European site and its QIs / SCIs). Where uncertainty exists, the precautionary principle[3] is applied.

2.3 Desktop Study

10 The desktop data sources used to inform the assessment presented in this report are as follows (accessed in October 2020 and updated in January 2023):

- Online data available on European sites and on Natural Heritage Areas (NHAs) or proposed Natural Heritage Areas (pNHAs) from www.npws.ie[4], including conservation objectives documents;
- Online data records available on National Biodiversity Data Centre Database (NBDC, 2023);
- Ordnance Survey Ireland (OSI) orthophotography (from 1995 to 2012) for the Proposed Scheme study area;
- Records of rare and / or protected species for the 10km grid squares O12, O13, O22 and O23, held by the NPWS (NPWS, 2022);
- Habitat and species GIS datasets provided by the NPWS, including Article 12 and Article 17 data[5];
- Records from the Botanical Society of Britain and Ireland (BSBI, 2022);
- Information contained within the Flora of County Dublin (Doogue *et al.,* 1998);
- Environmental information / data for the area available from the EPA website www.epa.ie;
- Information on the status of EU protected habitats and species in Ireland (NPWS, 2019);
- Information on light-bellied Brent goose inland feeding sites from the *Natura Impact Statement prepared for a Proposed Residential Development, St. Paul's College, Sybill Hill, Raheny, Dublin* (Scott Cawley Ltd., 2017);
- The results of ecological surveys undertaken as part of the Environmental Impact Assessment (EIA) studies for the Proposed Scheme (see Section 2.5 below for details);
- Information on the location, nature and design of the Proposed Scheme; and
- Bus Connects Drone Imagery, surveyed November 2020.

[3] The precautionary principle is a guiding principle that derives from Article 191 of the Treaty on the Functioning of the European Union and has been developed in the case law of the European Court of Justice (e.g. ECJ case C-127/02 – Waddenzee, Netherlands).

The guidance document *Communication from the Commission on the Precautionary Principle* (European Commission, 2000) notes that the precautionary principle "*covers those specific circumstances where scientific evidence is insufficient, inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the chosen level of protection*".

Applying the precautionary principle in the context of screening for appropriate assessment requires that where there is uncertainty or doubt about the risk of significant effects on a European site(s), it should be assumed that significant effects are possible and AA must be carried out.

[4] The following SAC and SPA GIS boundary datasets are the most recently available at the time of writing: SAC_ITM_2023_01 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.

2.4 Consultations

11 **Table 1** outlines the Appropriate Assessment issues raised during consultation, some of which are addressed in the AA Screening as noted, whereas others such as inclusion of mitigation measures are addressed in the NIS.

Table 1: Principal AA 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)	30th 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 referenced in Article 10 of the Habitats Directive.	Section 2.5 Baseline Surveys, Section 3.2 Overview of Receiving Environment Section 3.2.1 European Sites, Section 3.3 Assessment of Potential Effects on European Sites
		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	Section 2.5 Baseline Surveys, Section 3.2 Overview of Receiving Environment Section 3.3 Assessment of Effects on European sites

Consultee	Phase / Date of Consultation	Issues Raised	Relevant Section of the AA where this is addressed
		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. An Invasive Species Action Plan should form part of the planning application.	Section 3.2.3, Section 3.3.4. A non-native Invasive Species Management Plan has been prepared in respect of the Proposed Scheme as an appendix to the Construction Environmental Management Plan (CEMP). It is not considered during the AA Screening
		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.	Section 3.4 In-Combination Effects

Consultee	Phase / Date of Consultation	Issues Raised	Relevant Section of the AA where this is addressed
		The Proposed Scheme be subject to Appropriate Assessment 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. • 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.	The Proposed Scheme has been subject to Screening for AA and the production of a Natura Impact Statement, which accompanies the planning submission. Section 3.3 Potential Impacts, Zone of Influence and Identifying European sites at Risk of Effects Section 3.3 Assessment of Potential Effects

Consultee	Phase / Date of Consultation	Issues Raised	Relevant Section of the AA where this is addressed
Inland Fisheries Ireland (IFI)	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	The Proposed Scheme design has been cognisant of the IFI requirements, which are detailed in section 3.1 Also addressed in NIS

2.5 Baseline Surveys

12 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

13 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, and May and August 2022 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 Fossitt (2000) and in accordance with the Heritage Council's *Best Practice Guidance for Habitat Survey and Mapping* (Smith *et al.,* 2011). The level of field data quality was also recorded. Plant species present that were either representative of a habitat or considered to be of conservation interest (i.e., those listed on the Flora Protection Order or listed in the 'Threatened' category or higher on the Red List for vascular plants and bryophytes) were recorded, along with their relative abundances. Non-native invasive plant species listed on the Third Schedule of the 2011 Birds and Habitats Regulations were also recorded. Each 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* (Stace, 2019).

14 A desk study was carried out to identify all hydrological crossing points within the footprint of the Proposed Scheme. No in-stream 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, instream aquatic habitat surveys were not necessary.

2.5.2 Fauna Surveys

15 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 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 39.6km 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 54.8km south-west of the Proposed Scheme in the River Barrow catchment, River Nore catchment and River Ballyteigue-Bannow river catchment.

2.5.2.1 Otter

16 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, August 2020 and April 2022. 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.

2.5.2.2 Kingfisher

17 A desk study was carried out to identify all hydrological crossing points within the footprint of the Proposed Scheme. No in-stream 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 *Alcedo atthis* habitat suitability assessment surveys were not deemed necessary.

2.5.2.3 Other Birds

18 The results of the desk study have informed the assessment of likely significant effects on breeding bird species arising from the Proposed Scheme.

19 A desk study was carried out to identify any potential suitable inland feeding and / or roosting sites for wintering 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*[9] (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.

20 The desk study identified two sites adjacent to the Proposed Scheme with potential for wintering birds that would be subject to direct habitat loss. These sites are located along the Allies River Road, off R119 / Dublin Road, referred to as CBC0013WB001, and within the Shanganagh Park on R119 / Dublin Road referred to as CBC0013WB002. Both sites were surveyed nine times in total during the wintering bird survey season 2020/21. In addition, CBC0013WB002 was surveyed twice a month (total of 12 surveys) between October 2021 and March 2022. CBC0013WB001 was not surveyed during the 2021/22 survey season due to a change to the Proposed Scheme and no longer forming part of the landtake. The results of the desk study and field surveys have informed the assessment of potential impacts on wintering bird species arising from the Proposed Scheme.

21 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, 2010) 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

22 The following sections provide information to facilitate the Appropriate Assessment screening of the Proposed Scheme to be undertaken by the competent authority.

23 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.*).

24 The potential impacts are examined in order to define the potential zone of influence of the Proposed Scheme on the receiving environment. This then informs the assessment of whether the Proposed Scheme will result in significant effects on any European sites; i.e. affect the conservation objectives supporting the favourable conservation condition of the European site's QIs or SCIs.

3.1 Description of the Proposed Scheme

25 The following sections provide information to facilitate the Appropriate Assessment Screening 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.

3.1.1 Overview

26 The Proposed Scheme is approximately 18.5km long from end to end and will commence at the junction of Leeson Street Lower and St. Stephen's Green. The Proposed Scheme will run along Leeson Street Lower and Upper including the existing one-way system on Sussex Road. It will continue on Morehampton Road and Donnybrook Road through Donnybrook Village, and on to the Stillorgan Road. It will intersect with the Belfield / Blackrock to City Centre CBC at Nutley Lane and include the University College Dublin (UCD) Bus Interchange at the entrance to UCD. It will continue south on Stillorgan / Bray Road as far as the Loughlinstown Roundabout. The route will then proceed along the old Dublin Road through Shankill and onto Bray through the Wilford Roundabout (M11 Access Roundabout), Dublin Road, and Castle Street. The Proposed Scheme will finish at the Dargle River Crossing (Fran O'Toole Bridge).

27 The Proposed Scheme includes an upgrade of the existing bus priority and cycle facilities. The Proposed 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.

28 Moreover, pedestrian facilities will be upgraded and additional signalised crossings 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, an example of this can be seen in Donnybrook at Mulberry Lane.

29 For the purposes of describing the Proposed Scheme it has been split into four sections as follows:

- Section 1: Leeson Street to Donnybrook (Anglesea Road Junction);
- Section 2: Donnybrook (Anglesea Road Junction) to Loughlinstown Roundabout;
- Section 3: Loughlinstown Roundabout to Bray North (Wilford Roundabout); and
- Section 4: Bray North (Wilford Roundabout) to Bray South (Fran O'Toole Bridge).

30 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;
- Permanent land take at residential properties and non-residential properties, including commercial;
- Temporary land take at a number of areas across the scheme;
- Installation of new bus stops and junction / roundabout modification;

- Property boundary reinstatement, signage replacement; relocation of and/or installation of lighting columns; and
- Landscaping and tree planting, and reinstatement of temporary land acquisitions.

3.1.2 Structural Works

31 The Proposed Scheme requires the construction / remodelling of existing structures. Retaining walls that have a retained height less than 1.5m are classified as minor retaining walls and are not considered further. The same applies for earth embankments. However, retaining walls with a retained height greater than 1.5m are classed as principal structures. There are ten principal retaining walls along the Proposed Scheme, as detailed in Table 2.

Table 2: Principal Retaining Walls

Wall Reference	Structure Type	Retained Height (m)			Chainage Start	Chainage End	Length (m)
R13-RW043	Existing Wall at Loughlinstown Roundabout	Varies	3.6	Max	A14050	A14140	110
R13-RW023	Cast In-Situ Reinforced Concrete Wall	Varies	2.5	Max	E10	A14770	40
R13-RW024	Precast Reinforced Concrete Wall	N/A	1.5	Max	A14770	A14800	30
R13-RW036	Precast Reinforced Concrete Wall	N/A	0.5m	Max	A14800	A14980	Maximum 180
R13-RW045	Existing Masonry Wall at St Anne's Roundabout	Varies	1.5	Max	A15175	A15025	135
R13-RW046	Existing Masonry Wall at St Anne's Roundabout	Varies	3.2	Max	A15175	A15025	120
R13-RW038	Precast Reinforced Concrete Wall	Varies	1.8	Max	A17040	A17080	40
R13-RW013	Precast Reinforced Concrete Wall	Varies	1.5	Max	A17190	A17290	100
R13-RW016	Cast In-Situ Reinforced Concrete Wall	Varies	2.5	Max	A18085	A18130	45
R13-RW017	Cast In-Situ Reinforced Concrete Wall	N/A	2	Max	A18150	A18190	40

32 Retaining walls are typically installed to cater for level differences between the road and adjoining lands or where the narrowing of the existing corridor by way of space requirements does not allow for less constructed solution Retaining walls will generally be constructed of reinforced concrete, with railing and cladding as required, with suitable materials depending on the local environs. Retaining walls will generally be constructed by first isolating the site of the retaining wall using fencing, as appropriate, to the location. The existing ground will then be stripped to formation level. Existing services will be diverted as required to enable wall construction. A side slope will be battered back to enable construction. Blinding will be installed at formation level. Formwork and reinforcing steel for the wall will be fixed in place for *in-situ* concrete casting. Then concrete will be poured in sections and formwork removed after initial curing of concrete. After a sufficient curing period the area behind the wall will be backfilled. Elsewhere precast concrete walls are specified and these will be lifted in to place on previously prepared ground, and then secured before backfilling as appropriate.

33 Asides from key retaining walls listed above, a number of principal structures are included in the Proposed Scheme. These include:

- The provision of 'Island and Plaza' type bus shelter structures at the UCD Bus Interchange facility Bus stop reference #768 at chainage A4000.
- The widening of the existing pedestrian subway (on its eastern side) at Patrician Villas / St Laurence's in Stillorgan to accommodate new footpaths and cycle tracks will run parallel to the N11 mainline in both directions;

- The demolition and reconstruction (set back further from the Proposed Scheme of the Woodbrook Side Lodge including its boundary wall and pedestrian / vehicle gated entry along the Dublin Road near Wilford Roundabout towards Bray.

3.1.3 Surface Water Drainage Infrastructure

34 The surface water drainage system for the Proposed Scheme will discharge into the existing surface water drainage system. There are eight existing surface water catchments and one wastewater treatment plant (WwTP) to which the drainage system for the Proposed Scheme will discharge. Surface waters will drain to the River Dodder (Dodder_050), Elm Park Stream, Booterstown Stream, Priory Stream and Brewery Stream (all within the Brewery Stream_010 catchment), Kill of the Grange Stream (Kill o The Grange Stream_010), Cabinteely Stream and Carrickmines Stream (both within the Carrickmines Stream_010 catchment), Shanganagh River (Shanganagh_010), Rathmichael Stream and the River Dargle (both within the Dargle_040 catchment) and Ringsend WwTP, and ultimately via these receptors to the Irish Sea. The Proposed Scheme crosses the River Dodder at Donnybrook, the Elm Park Stream (Brewery Stream_010) at UCD (likely culverted), the Brewery Stream at St. John of God Hospital, the Shanganagh River at Loughlinstown and the Rathmichael Stream on R119 Dublin Road.

35 The drainage system for the Proposed Scheme, and therefore the runoff, will continue to discharge to the above receptors through existing surface water outfalls. All drainage outfall discharges to surface waters represent point discharges.

36 There will be a net increase in impermeable area draining of 8m^2 in the catchment area draining to the Dodder_050. This will equate to a 0.07% reduction in impermeable area, and will result in a decrease in the volume and rate of runoff of the Dodder_050 as a result. There will be a net increase in impermeable area draining to Brewery Stream_010 of 11,471m^2, which equates to a 3.28% increase. There will also be a net increase in impermeable area draining to the Kill of The Grange Stream _010 of 2,552m^2, which equates to a 2.1% increase and the Carrickmines Stream_010 of 883m^2 which equates to a 1.63% increase. There will be a net increase in impermeable area draining to the Shanganagh River (Shanganagh_010) of 2,792m^2 which equates to a 5.44% increase and the Dargle_040 of 11,650m^2 which equates to a 14% increase. Overall the small increases in impermeable areas for the catchments draining to the Irish Sea will have no measurable impact on this waterbody during the Operational Phase of the Proposed Scheme.

37 Notwithstanding this, the drainage design principles ensure that there will be no net increase in the surface water flow discharged to these receptors.

38 The Proposed Scheme will increase the amount of impermeable surface area through widening of carriageways. Drainage of these newly paved areas will include Sustainable Drainage System (SuDS) measures to treat and attenuate any additional runoff. These measures will ensure that there is no increase in existing runoff rates from newly paved areas and appropriate treatment to ensure runoff quality. SuDS measures proposed for this scheme include relocation and addition of drainage gullies, pavement capping layer attenuation (under the UCD Bus Interchange), filter drains, attenuation tanks, oversized pipes, swales, attenuation ponds and tree pits which will be installed in suitable locations along the Proposed Scheme (e.g. in the central median and along road verges).

Table 3: Proposed SuDs and Impermeable Area Changes

Waterbody	Approx. Impermeable Surface Area m^2			SuDS Measures Proposed
	Existing	Additional	Percentage change	
Ringsend WwTP	94,582	-535	-0.57%	None
Dodder_050	12,144	-8	-0.07%	None
Brewery Stream_010	349,311	11,471	3.28%	Tree pits, Filter drains, Attenuation tanks, Oversized pipes
Kill of The Grange Stream_010	118,997	2,552	2.14%	Tree pits, Filter drains, Oversized pipes
Carrickmines Stream_010	54,185	883	1.63%	Oversized pipes
Shanganagh_010	51,544	2,792	5.42%	Filter drains, Attenuation tanks, Oversized pipes
Dargle_040	83,204	11,650	14%	Tree pits, Filter drains, Attenuation tanks, Oversized pipes
South-western Irish Sea	2,737	116	4.24%	None

3.1.4 Construction Compounds

39 The locations of the Construction Compounds in relation to the Proposed Scheme have been selected due to the amount of available space, its location near the majority of the Proposed Scheme major works and its access to the National and Regional Road network. Two Construction Compounds will be required along the length of the Proposed Scheme to facilitate construction. They will be located at:

- **Construction Compound BR1:** located in an area of derelict land characterized by Scrub and revegetating ground at Wilford Roundabout at the turnoff from the Dublin Road onto the Shankill Bypass flyover (M11 Junction 5 Bray North); and,
- **Construction Compound BR2:** located in an area of managed grassland at Fosterbrook, off the Stillorgan Road in fronting the grounds of the Radisson St. Helens Hotel.

40 These two Construction Compounds will be used to store materials, plant and equipment, to manage the activities from, and to provide welfare facilities for construction personnel. The Construction Compounds will be in place for the duration of the Construction Phase of the Proposed Scheme.

41 The locations of the Construction Compounds are shown in Images 2 and 3. These Construction Compounds will contain a site office, and welfare facilities for NTA personnel and contractor personnel. Limited car parking will be allowed at the Construction Compounds. Materials such as topsoil, subsoil, concrete, rock etc., will be stored at the Construction Compounds for reuse as necessary. Items of plant and equipment will also be stored within the Construction Compounds.

42 The Construction Compounds will be engineered with appropriate services. Water, wastewater, power, and communications connections will be organised by the appointed contractor. At work areas along the Proposed Scheme, where permanent provisions (for the duration of the construction programme) are not practicable, appropriate temporary provisions will be made including the use of generators if required. Temporary welfare facilities will need to be used, for example, portable toilets in the vicinity of works. Wastewater from temporary welfare facilities will be collected and disposed of to a suitably licenced facility.

43 The Construction Compounds will be in place for the duration of the Construction Phase of the Proposed Scheme estimated at approximately 36 months.

44 Following completion of the Construction Phase, the Construction Compounds will be dismantled and the sites reinstated to match pre-existing conditions.

Image 2 Location and Extent of Construction Compound BR1

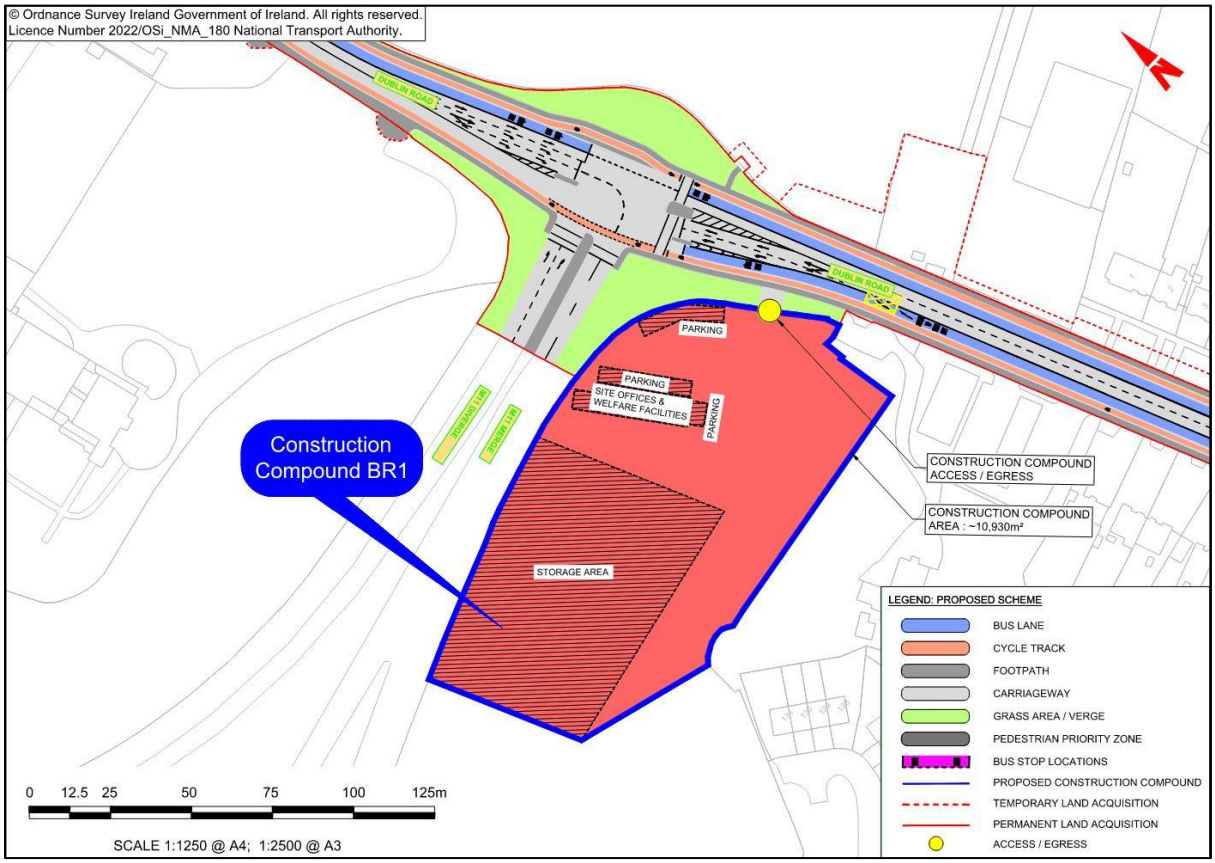
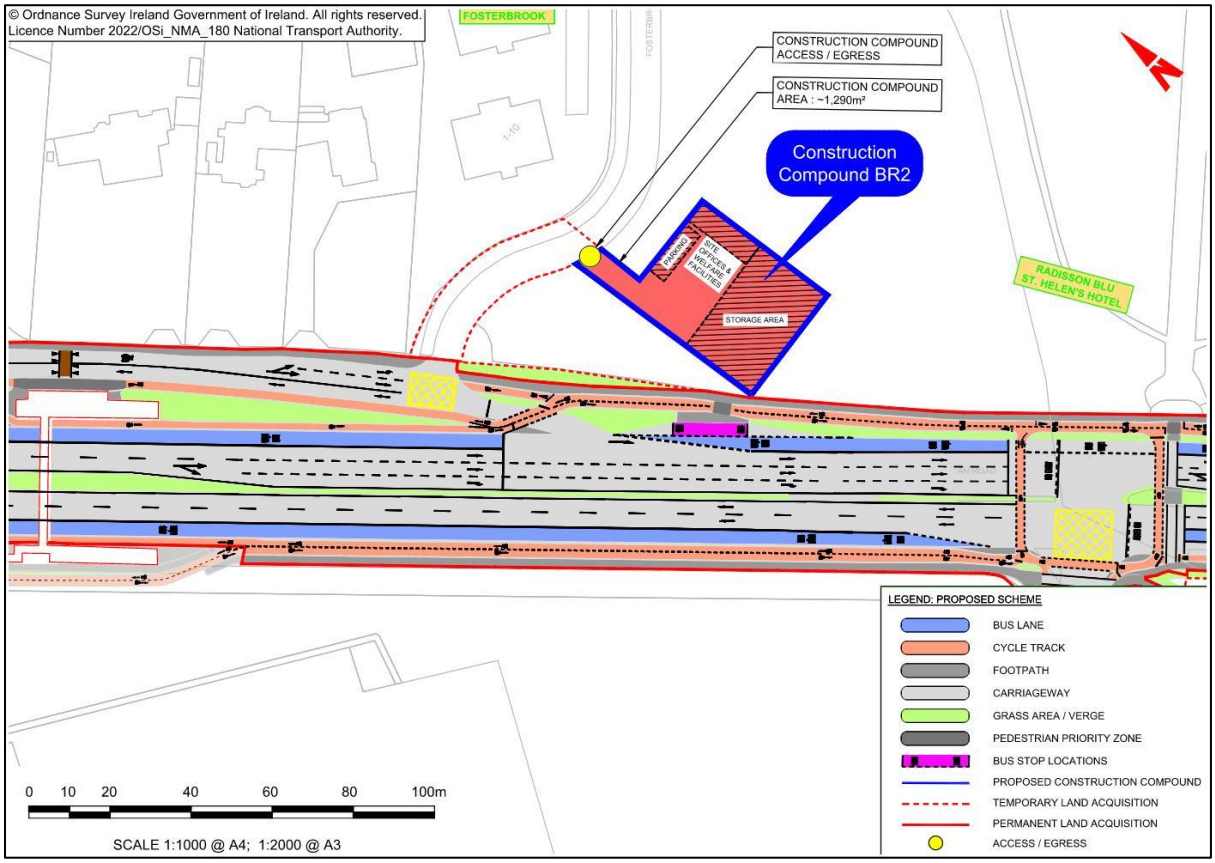


Image 3 Location and Extent of Construction Compound BR2



3.1.5 Estimated Project Duration

45 The duration of the Construction Phase is estimated to be of the duration of 36 months.

3.1.6 Operational Phase

46 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.

3.2 Overview of the Receiving Environment

3.2.1 European sites

47 The Proposed Scheme does not overlap with any European site. The nearest European site to the Proposed Scheme is South Dublin Bay and River Tolka Estuary SPA, which is located approximately 900m away. The nearest European sites with a direct hydrological connection to the Proposed Scheme are South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC, which are located approximately 1.38km downstream of the Proposed Scheme, via the Elm Park Stream (Brewery Stream_010) at UCD.

48 There are nineteen (19) European sites located in Dublin Bay and beyond that are hydrologically connected to the Proposed Scheme. These European sites are South Dublin Bay SAC, Bray Head SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, Howth Head SAC, Lambay Island SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Howth Head Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary

SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill SPA. European sites will be hydrologically connected to the Proposed Scheme via six watercourses i.e. Grand Canal, River Dodder, Brewery Stream, Shanganagh River, Rathmichael Stream and River Dargle, and the Ringsend WwTP.

49 There are nine SPAs designated for SCI species that are known to forage and/or roost at inland sites across Dublin City. These are South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA and Skerries Islands SPA.

50 There are two European sites containing marine mammals which are known to frequent Dublin Bay and the Liffey Estuary Lower, namely: Rockabill to Dalkey Island SAC and Lambay Island SAC..

51 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.

3.2.2 Habitats

52 The Proposed Scheme is located in a highly urbanised environment. Habitats present in the footprint of the Proposed Scheme include the following:

- Arable crops (BC1);
- 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);
- Canals (FW3);
- Reed and large sedge swamps (FS1);
- Amenity grassland (improved) (GA2);
- Dry meadows and grassy verges (GS2);
- Residential;
- (Mixed) broadleaved woodland (WD1);
- Scattered trees and parkland (WD5);
- Hedgerows (WL1);
- Treelines (WL2);
- Wet willow-alder-ash woodland (WN6);
- Scrub (WS1);
- Immature woodland (WS2); and,
- Ornamental / non-native shrub (WS3).

53 The habitat type tidal rivers (CW2) corresponds with the Annex I habitat 'Estuaries [1130]' and is present in the Liffey Estuary Lower, downstream of the Proposed Scheme. The dry meadows and grassy verges (GS2) habitats located within the Proposed Scheme does not correspond with the Annex I habitat 'lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) [6510]'. The wet willow-alder-ash woodland (WN6) which corresponds with the Annex I priority habitat '*alluvial forests with *Alnus glutinosa* and

Fraxinus excelsior (Alno-padion, Alnion incanae, Salicion albae) (91E0)' is located approximately 5m (at its closest) east and downgradient of the Proposed Scheme at the Loughlinstown Woods pNHA.

3.2.3 Flora and Fauna Species

3.2.3.1 Flora

54 No records of any Annex II plant species were recorded within the footprint of the Proposed Scheme during field surveys.

55 The desk study returned records of a total of twenty two (22) terrestrial or freshwater flora species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 across the wider study area (i.e. grid Squares O12, O13, O21 and O22). Records within close proximity to the Proposed Scheme include American skunk-cabbage *Lysichiton americanus*, floating pennywort *Hydrocotyle ranunculoides,* giant hogweed *Heracleum mantegazzianum*, Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Reynoutria japonica*, Nuttall's waterweed *Elodea nuttalii*, parrot's-feather *Myriophyllum aquaticum*, Spanish bluebell *Hyacinthoides hispanica* and three-cornered garlic *Allium triquetum.*

56 Canadian waterweed *Elodea canadensis*, which was also documented within 1km of the Proposed Scheme, however has been delisted as a Third Schedule species, with the introduction of the European Communities (Birds and Natural Habitats) (Amendment) Regulations 2015, S.I. No. 355/2015.

57 There were eighteen (18) areas of the non-native invasive plant species comprising Japanese knotweed, Himalayan balsam and Giant hogweed listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 identified along or adjacent to the Proposed Scheme. These locations are summarised in Table 4.

Table 4: Non-native Invasive Plant Species listed in the Third Schedule of the Birds and Natural Habitats Regulations 2011 recorded along or adjacent to the Proposed Scheme

Reference	Species	Description
CBC0013IAPS01	Japanese knotweed *Reynoutria japonica*	Small stand on the northern bank of the River Dodder, adjacent to the eastern side of the Donnybrook Road bridge
CBC0013IAPS02	Himalayan balsam *Impatiens glandulifera*	Small stand on the northern bank of the River Dodder, adjacent to the eastern side of the Donnybrook Road bridge
CBC0013IAPS03	Japanese knotweed *Reynoutria japonica*	Treated stand on the southern bank of the River Dodder, adjacent to the western side of the Donnybrook Road bridge
CBC0013IAPS04	Japanese knotweed *Reynoutria japonica*	Small stand adjacent to the New RTE Entrance on the Donnybrook Road.
CBC0013IAPS05	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the eastern bank of the Carrickmines Stream, adjacent to the N11 / Wyattville Link Road Junction
CBC0013APS06	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the eastern bank of the Carrickmines Stream, adjacent to the N11 / Wyattville Link Road Junction
CBC0013APS07	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the western bank of the Carrickmines Stream, south of the N11 / Wyattville Link Road Junction

Reference	Species	Description
CBC0013APS08	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the eastern bank of the Carrickmines Stream, south of the N11 / Wyattville Link Road Junction
CBC0013APS09	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the eastern bank of the Carrickmines Stream, south of the N11 / Wyattville Link Road Junction
CBC0013APS10	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the eastern bank of the Carrickmines Stream, south of the N11 / Wyattville Link Road Junction
CBC0013APS11	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the eastern bank of the Carrickmines Stream, south of the N11 / Wyattville Link Road Junction
CBC0013APS12	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the eastern bank of the Carrickmines Stream, south of the N11 / Wyattville Link Road Junction
CBC0013APS13	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the eastern bank of the Carrickmines Stream, south of the N11 / Wyattville Link Road Junction
CBC0013APS14	Giant hogweed *Heracleum mantegazzianum*	Patchily distributed stand on the eastern bank of the Carrickmines Stream, south of the N11 / Wyattville Link Road Junction
CBC0013APS15	Giant hogweed *Heracleum mantegazzianum*	Stand on the northern bank of the Shanganagh River, in the north-western section of Loughlinstown Woods.
CBC0013APS16	Japanese knotweed *Reynoutria japonica*	Stand on the northern bank of the Shanganagh River, west of the Loughlinstown Road
CBC0013APS17	Japanese knotweed *Reynoutria japonica*	Stand on the southern bank of the Shanganagh River, west of the Loughlinstown Road
CBC0013APS18	Giant hogweed *Heracleum mantegazzianum*	Stand in the western section of Loughlinstown Woods, north of Loughlinstown Pitch and Putt.

3.2.3.2 Fauna

Otter

58 The desk study found that otter are known to occur within 1km of the Proposed Scheme and across the wider study area. Otter are known to utilise the Grand Canal for foraging and commuting purposes. Otter are also known to be present along the River Liffey, South Dublin Bay, the Shanganagh River, Deansgrange Stream and the Cabinteely Stream67. Records of otter were returned from Bray, along the Swan River,

[6] Macklin, R., & Brazier, B. (2019b). O*tter survey of selected rivers in Dún Laoghaire-Rathdown County Council district with management recommendations* . Report prepared by Triturus Environmental Ltd. for Dún Laoghaire-Rathdown County Council.

[7] Dún Laoghaire-Rathdown County Council (2021). *Dún Laoghaire-Rathdown Biodiversity Plan 2*021 - *202*5.

which is hydrologically connected to the southern section of the Proposed Scheme, via the River Dargle. The River Dodder is known to support a healthy otter population with several records of holts and otter activity throughout the waterbody[8].

59 Multidisciplinary surveys conducted by Scott Cawley Ltd., during 2018 found evidence of an otter sprainting post on the River Dodder. This sprainting post was located on a rock in the mid-stream of the river, approximately 30m west of Anglesey Bridge, just north of the Dublin Bus Depot in Donnybrook. Follow on surveys in August 2020 and April 2022, found otter footprints and a potential otter track approximately 1.1km and 300m downstream of the Ballsbridge crossing, respectively. There was no evidence of otter habitation features on the downstream side of the Dodder which has been modified through the construction of flood relief measures. The vegetation on the upstream side has been cleared along one side of the watercourse during the ongoing construction of flood defences and the potential for otter holts has been reduced. Two of the watercourses (Brewery Stream and the Shanganagh River) which will be intersected by the Proposed Scheme are partially culverted and are therefore not likely to be favourable to support otter. A single otter spraint was recorded on the ledge underneath the Emmett Bridge by Triturus Environmental in 2022 as part of surveys for other Bus Connects schemes (Triturus Environmental Ltd., 2022) . The nearest European site for which this species is designated is the Wicklow Mountains SAC, which is located approximately 6.7km south-west of the Proposed Scheme. Wicklow Mountains SAC is located within the same sub-catchments (Dodder_SC_010 and Dargle_SC_010) to the Proposed Scheme. As such, populations of otter within the footprint of the Proposed Scheme are potentially connected to the SAC population.

Marine mammals

60 Harbour seal *Phoca vitulina*, grey seal *Halichoerus grypus* and harbour porpoise *Phocoena phocoena* are known to be present in Dublin Bay. Both seal species are listed on Annex II and V of the Habitats Directive, while harbour porpoise is listed on Annex II and IV of the Habitats Directive. The nearest European site for which harbour seal and grey seal have been designated is Lambay Island SAC located approximately 22.3km from the Proposed Scheme. The nearest European site for which harbour porpoise has been designated is Rockabill to Dalkey Island SAC located approximately 2.6km from the Proposed Scheme.

61 No specific marine mammal survey was undertaken as part of the Proposed Scheme.

Kingfisher

62 A desk study found that kingfisher, an Annex I bird 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 kingfisher (DCC, 2021). There are also records of kingfisher on the Grand Canal, which is within 1km of the Proposed Scheme (FERS Ltd., 2018).

63 The nearest European site for which this species is designated is River Boyne and River Blackwater SPA, which is located approximately 39.7km from the Proposed Scheme in a separate catchment. Kingfisher populations within close proximity to the Proposed Scheme are not deemed to be SCI species.

64 No specific kingfisher survey was undertaken as part of the Proposed Scheme.

Other Birds

65 The desk study returned records of a total of 139 wintering bird species, including 111 species with breeding and wintering populations in the wider study area (i.e. Grid Squares O12, O13, O21 and O22). Records included twenty one (21) species listed under Annex I of the Birds Directive and fifty five (55) SCI species. 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 study of lands within 300m of the Proposed Scheme returned records of five SCI wintering bird species which may use inland amenity

[8] Macklin, R., Brazier, B. & Sleeman, P. (2019a). *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.

grassland feeding sites, including light-bellied Brent goose, lapwing *Vanellus vanellus*, black-headed gull *Chroicocephalus ridibundus*, herring gull *Larus argentatus* and lesser black-backed gull *Larus fuscus*.

66 A review of a study into light-bellied Brent goose inland feeding sites[8] has identified no inland wintering bird feeding sites within the footprint of the Proposed Scheme. There is one known inland wintering bird feeding sites within approximately 300m of the Proposed Scheme i.e., the disturbance ZoI - Cabinteely / Kilbogget Park, located approximately 219m east of the Proposed Scheme.

67 Wintering bird surveys were carried out for the Proposed Scheme at two locations, along the Allies River Road, off R119 Dublin Road (referred to as CBC0013WB001), and within the Shanganagh Park on R119 Dublin Road (referred to as CBC0013WB002), during the wintering bird survey seasons 2020/21 and 2021/22. Wintering bird surveys were terminated after the first survey season for CBC0013WB001 following removal of this site from the required land intake area. **Table 6** 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 5: Wintering Birds of Conservation Concern Recorded at Sites CBC0013WB001 and CBC0013WB002 during the Wintering Bird Surveys

Common Name / Scientific Name / BTO Code	Site: Peak Count and Activity in the Study Area (2020/2021)	Site: Peak Count and Activity in the Study Area (2021/2022)	Conservation Importance			Nearest SPA Designated for SCI Species
			BoCCI (B – Breeding / W - Wintering)	Annex I	SCI	
Black-headed gull *Chroicocephalus ridibundus* (BH)	103 individuals foraging on grassland within Shanganagh Park at CBC0013WB002	43 individuals foraging on grassland within Shanganagh Park at CBC0013WB002	Amber (B/W)	-	✓	South Dublin Bay and River Tolka Estuary SPA approximately 3.3km
Herring gull *Larus argentatus* (HG)	Two individuals foraging on grassland within Shanganagh Park at CBC0013WB002	n/a	Amber (B/W)	-	✓	Ireland's Eye SPA approximately 15.9km

68 Site conditions at fields adjacent to the Allies River Road (CBC0013WB001) were of agricultural use but no noticeable crop was seen during surveys. Shanganagh Park (CBC0013WB002) is an open public amenity park with two Gaelic pitches and playground adjacent to the transect. No wintering birds were recorded at CBC0013WB001 throughout the survey period, even though no disturbance was noted at these two fields. The disturbance at CBC0013WB002 was noted as high on this site due to animals (dogs off leash) and number of walkers using the public paths and Gaelic pitches for recreational exercise.

69 Wintering bird activity was low across all visits. No droppings attributed to light-bellied Brent goose were recorded along the transects. Table 6 compares peak counts identified across surveys to their national and international populations.

Table 6: Wintering Bird Species Recorded during Winter Bird Surveys in Comparison to the 1% of its International and National Populations

Common Name / Scientific Name / BTO Code	Peak Count (2020/2021)	Peak Count (2021/2022)	Associated European sites within the ZoI	1% of International Population	1% of National Population
Black-headed gull *Chroicocephalus ridibundus* (BH)	103	43	South Dublin Bay and River Tolka Estuary SPA North Bull Island SPA The Murrough SPA	31,000	n/a
Herring gull *Larus argentatus* (HG)	2	n/a	Ireland's Eye SPA The Murrough SPA	14,000	n/a

3.2.4 Hydrology

70 The Proposed Scheme crosses five watercourses: the Grand Canal, River Dodder, Brewery Stream, Shanganagh River and Rathmichael Stream, and ends on the northern bank of the River Dargle. The Proposed Scheme is also hydrologically connected to Elm Park Stream, Booterstown Stream, Priory Stream, the Kill of the Grange Stream, Cabinteely Stream, Carrickmines Stream and South-western Irish Sea, as well as Dublin Bay via Ringsend WwTP.

71 The catchment details available for the Proposed Scheme indicate that surface waters for the Proposed Scheme largely discharge directly to the Dodder_50, Brewery Stream_010, Kill of the Grange Stream_010, Carrickmines Stream_010, Shanganagh_010, Dargle_040, and South-western Irish Sea – Killiney Bay

72 The proposed drainage system for the Proposed Scheme will discharge to the River Dodder (Dodder_050), Elm Park Stream, Booterstown Stream, Priory Stream and Brewery Stream (all segments of the Brewery Stream_010 WFD water body), Kill of The Grange Stream (Kill of The Grange Stream_010), Cabinteely Stream and Carrickmines Stream (both segments of the Carrickmines Stream_010 water body), Shanganagh River (Shanganagh_010), Rathmichael Stream and River Dargle (Dargle_040) and the Irish Sea.

73 Details on the water quality of each watercourse (for the period 2016-2021), as sourced from the Environmental Protection Agency (EPA), and the distances from the proposed crossing point to downstream waterbodies are also provided in **Table 7**.

Table 7: 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 (2016-2021/ Risk Score (3rd Cycle RMBP)	Name of and Distance to Downstream Waterbodies along with their associated Water Quality
Dodder River (Dodder_050)	One existing crossing point at Anglesey Bridge on Donnybrook Road, in Donnybrook	Q3-4 (Footbridge, Beaver Row) slightly upstream of the Proposed Scheme Q2-3 (Dodder- Ballsbridge) downstream of the Proposed Scheme Moderate - Poor *'At risk'*	It flows for approximately 3km, from the existing crossing point, until it reaches the Liffey Estuary Lower transitional waterbody at Grand Canal Dock (classified as "*Unpolluted*"), which ultimately drains to Dublin Bay coastal waterbody (classified as "*Unpolluted*").
Shanganagh River (Shanganagh_010)	One existing crossing point, where the river flows under the N11, adjacent to Loughlinstown Woods	Q3-4 (At Commons Road) Moderate *'At risk'*	It flows for approximately 2.7km from the existing crossing point prior to outfall directly into the Southwestern Irish Sea - Killiney Bay coastal waterbody (classified as "*Unpolluted*") north of Shanganagh Wastewater Treatment Plant.
Brewery Stream (Brewery Stream_010)	One existing crossing point, where the stream is culverted under the N11 Stillorgan Road, adjacent to St. John of God Hospital	No Q-value data available Poor '*Under review*'	It flows for approximately 1.7km from the existing crossing point prior to outfall directly into Dublin Bay coastal waterbody (classified as "*Unpolluted*") at Idrone Terrace, Blackrock.
Rathmichael Stream (Dargle_040)	One existing crossing point, where the stream flows under the Dublin Road, adjacent to Woodbrook College in Shankill	No Q-value data available Good *'At risk'*	It flows for approximately 1.3km from the existing crossing point prior to outfall directly into the Southwestern Irish Sea – Killiney Bay (classified as "*Unpolluted*"), north of Bray Harbour.

Watercourse	Location in relation to the Proposed Scheme	EPA Q-Values (Monitoring Station) and Water Framework Directive Water Quality Status (2016-2021/ Risk Score (3rd Cycle RMBP)	Name of and Distance to Downstream Waterbodies along with their associated Water Quality
Grand Canal Main Line (Liffey and Dublin Bay)	One existing crossing point, at the Leeson Street Bridge	Q-Value Score not applicable Good Ecological Potential 'Not at risk'	It flows for approximately 2.2km from the existing crossing point at Leeson Street until it reaches the Liffey Estuary Lower transitional waterbody (classified as "Unpolluted") at Grand Canal Dock, which ultimately drains to Dublin Bay coastal waterbody (classified as "Unpolluted").
Elm Park Stream (Brewery Stream_010)	Hydrologically connected to the Proposed Scheme via the receiving surface water system	No water quality data available Poor 'Under review'	It flows through Elm Park Golf and Sports Club prior to outfall into Dublin Bay (classified as "*Unpolluted*"), south of Merrion Gates.
Trimelstown Stream (Booterstown Stream) (Brewery Stream_010)	Hydrologically connected to the Proposed Scheme via the receiving surface water system	No water quality data available Poor '*Under review*'	It flows into Dublin Bay (classified as "*Unpolluted*"), north of Booterstown Marsh.
Priory Stream (Brewery Stream_010)	Hydrologically connected to the Proposed Scheme via the receiving surface water system	No Q-value data available Poor '*Under review*'	It flows into Dublin Bay (classified as "*Unpolluted*"), south-east of Blackrock Park.
Kill o the Grange Stream (Kill of The Grange Stream_010)	Hydrologically connected to the Proposed Scheme via the receiving surface water system	Q2-3 (Nr Kill Lane National School, Footbridge Meadowvale) Q3 (Bridge on Johnstown Road) Poor *'At risk'*	It flows into Southwestern Irish Sea – Killiney Bay (classified as "*Unpolluted*") at Killiney Strand.

Watercourse	Location in relation to the Proposed Scheme	EPA Q-Values (Monitoring Station) and Water Framework Directive Water Quality Status (2016-2021/ Risk Score (3rd Cycle RMBP)	Name of and Distance to Downstream Waterbodies along with their associated Water Quality
Cabinteely Stream (Carrickmines Stream_010)	Hydrologically connected to the Proposed Scheme via the receiving surface water system	No Q-value data available Good *'At risk'*	It flows into the Carrickmines Stream west of the N11, in Cabinteely. The Carrickmines stream flows into the Shanganagh River prior to outfall into the Southwestern Irish Sea - Killiney Bay coastal waterbody (classified as "*Unpolluted*") north of Shanganagh Wastewater Treatment Plant.
Carrickmines Stream (Carrickmines Stream_010)	Hydrologically connected to the Proposed Scheme via the receiving surface water system	Q3-4 (u/s Overpass) Moderate *'At risk'*	It flows into the Shanganagh River adjacent to the Proposed Scheme, west of Loughlinstown Woods. The Shanganagh River flows into the Southwestern Irish Sea - Killiney Bay coastal waterbody (classified as "*Unpolluted*") north of Shanganagh Wastewater Treatment Plant.
River Dargle (Dargle_040	Hydrologically connected to the Proposed Scheme via the receiving surface water system	Q5 (Just d/s Bray Br) Good '*Not at risk'*	It flows into the Dargle Estuary transitional waterbody (classified as 'Intermediate'), which ultimately drains to South Western Irish Sea Killiney Bay coastal waterbody (classified as "*Unpolluted*")
Liffey Estuary Upper	Hydrologically connected to the Proposed Scheme via the surface water system.	Q-Value Score not applicable Good *'At risk'*	It flows into the Liffey Estuary Lower transitional waterbody (classified as "*Unpolluted*"), which ultimately drains to Dublin Bay coastal waterbody (classified as "*Unpolluted*").
Liffey Estuary Lower	Hydrologically connected to the Proposed Scheme via the surface water system.	Q-Value Score not applicable Good *'At risk'*	The Liffey Estuary Lower transitional waterbody (classified as "*Unpolluted*") at Grand Canal Dock, which ultimately drains to Dublin Bay coastal waterbody (classified as "*Unpolluted*").
Dublin Bay	Hydrologically connected to the Proposed Scheme via Ringsend Wastewater Treatment Plant, and the watercourses outlined in the rows above.	Q-Value Score not applicable Good *'Not at risk'*	The Dublin Bay coastal waterbody is classified as "*Unpolluted*".
Dargle Estuary	Hydrologically connected to the Proposed Scheme via the receiving surface water system	Q-Value Score not applicable Moderate 'U*nder review'*	It flows into the South Western Irish Sea Killiney Bay coastal waterbody (classified as "*Unpolluted*")

Watercourse	Location in relation to the Proposed Scheme	EPA Q-Values (Monitoring Station) and Water Framework Directive Water Quality Status (2016-2021/ Risk Score (3rd Cycle RMBP)	Name of and Distance to Downstream Waterbodies along with their associated Water Quality
South Western Irish Sea – Killiney Bay	Hydrologically connected to the Proposed Scheme	High *'Not at risk'*	The South Western Irish Sea -Killiney Bay coastal waterbody is classified as "*Unpolluted*".

3.2.5 Hydrogeology

74 The Geological Survey of Ireland (GSI) data indicates that the bedrock formation 1:500k in the Proposed Scheme is "*Dark-grey argillaceous & cherty limestone and shale (Calp)",* north of Booterstown. *"Granite, granodiorite"* and *"Deep marine: Slate, schist & minor greywacke"* are present in the middle section of the Proposed Scheme and *"Marine: Greywacke & shale"* is present in the southernmost section, in Bray.

75 The Proposed Scheme traverses three groundwater bodies. Environmental data sourced from the EPA for each of these ground waterbodies is presented below:

<u>Dublin Groundwater Body</u>

- It is considered to be of "*Good*" groundwater body WFD Status (2016-2021) and the 3rd cycle WFD risk status is under "*Under Review*";
- The aquifers located within this groundwater body and where the Proposed Scheme transverses are classified as "*locally important aquifer - moderately productive only in local zones*".

76 The vulnerability of the Dublin groundwater bodies to human activities ranges from "*Rock at or Near Surface*", "*Extreme*", "*High*", "*Moderate*" to "*Low*" within the footprint of the Proposed Scheme.

<u>Kilcullen Groundwater body</u>

- It is considered to be of "*Good*" groundwater body WFD Status (2016-2021) and "*at risk*" of failing the 3rd cycle WFD groundwater quality objectives;
- The aquifers located within this groundwater Body and where the Proposed Scheme traverses are classified as *"poor aquifer - bedrock which is generally unproductive except for local zones".*

77 The vulnerability of the Kilcullen groundwater body to human activities ranges from "*Rock at or Near Surface*", "*Extreme*", "*High*" to "*Moderate*" within the footprint of the Proposed Scheme.

<u>Wicklow Groundwater body</u>

- It is considered to be of "*Good*" groundwater body WFD Status (2016-2021) and the 3rd cycle WFD risk status is under "*At Risk*";
- The aquifers located within this groundwater body and where the Proposed Scheme traverses are classified as "*locally important aquifer - moderately productive only in local zones*" and *"poor aquifer - bedrock which is generally unproductive except for local zones".*

78 The vulnerability of the Wicklow groundwater body to human activities ranges from "*Rock at or Near Surface*", "*Extreme*", "*High*", "*Moderate*" to "*Low*" within the footprint of the Proposed Scheme.

3.2.6 Soils & Geology

79 The 1:100,000 GSI bedrock geology map[9] of the area indicates that the underlying bedrock along the Proposed Scheme comprises of Lucan Formation - (Calp) dark limestone and shale, Rush Conglomerate Formation, Ballysteen Formation and the Tober Colleen formation- Calcareous shale, limestone conglomerate. 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.

3.2.7 Air quality

80 As part of the implementation of S.I. No. 271/2002 - Air Quality Standards Regulations 2002, four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA 2020a). Dublin is defined as Zone A. With regard to NO_2, continuous monitoring data from the EPA at locations in close proximity to the Proposed Scheme was reviewed. The stations considered by the project air quality experts representative of the Proposed Scheme include: Ballyfermot, Swords, Rathmines and Dún Laoghaire, whilst long-term trends in the City Centre are available for Winetavern Street, which is adjacent to the northern end of the Proposed Scheme. Sufficient data is available for these stations to review long-term trends over a five-year period (2015 to 2019) (See **Table 8**).

Table 8: Trends in Suburban and Urban NO_2 Concentrations (µg/m³) In Dublin 2015 to 2019

Station	Station Classification Council Directive 96 /62/EC	Averaging Period	2015	2016	2017	2018	2019	Limit Value
Rathmines	Urban Background	Annual Mean NO_2 (µg/m³)	18	20	17	20	22	40
		99.8th%ile 1-hr NO_2 (µg/m³)	105	88	86	87	102	200
Ballyfermot	Suburban Background	Annual Mean NO_2 (µg/m³)	16	17	17	17	20	40
		99.8th%ile 1-hr NO_2 (µg/m³)	127	90	112	101	101	200
Dun Laoghaire	Suburban Background	Annual Mean NO_2 (µg/m³)	16	19	17	19	15	40
		99.8th%ile 1-hr NO_2 (µg/m³)	91	105	101	91	84	200
Swords	Suburban Background	Annual Mean NO_2 (µg/m³)	13	16	14	16	15	40
		99.8th%ile 1-hr NO_2 (µg/m³)	93	96	79	85	80	200
Winetavern Street	Urban Traffic	Annual Mean NO_2 (µg/m³)	31	37	27	29	28	40
		99.8th%ile 1-hr NO_2 (µg/m³)	128	120	110	115	115	200

[9] Accessible at https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228

81 Continuous PM10 monitoring carried out at the suburban locations of Rathmines, Phoenix Park and Ballyfermot. Ballyfermot, Dún Laoghaire, Tallaght, Rathmines and Phoenix Park, which showed annual average levels ranging from 11µg/m^3 to 15µg/m^3 in 2019, with a maximum of nine exceedances of the 24-hour limit value of 50µg/m^3 (35 exceedances are permitted per year). Longer term averages from 2015 to 2019 show annual average concentrations of between 9µg/m^3 to 16µg/m^3.

82 Continuous PM2.5 monitoring carried out at the Zone A locations of Finglas, Rathmines and Marino showed average levels of 9.3µg/m^3 in 2019. A suburban Zone C $PM_{2.5}$ monitoring station in Bray, 2.2 km south-west of the Proposed Scheme, has sufficient long-term data for review. Long term averages for the Bray station from 2015 to 2019 show an average concentration of 6.6µg/m^3 compared to the annual limit value of 25µg/m^3. The annual average level measured in Rathmines in 2019 was 10µg/m^3. Rathmines monitors both PM_{10} and $PM_{2.5}$

3.3 Assessment of Potential Effects on European Sites

83 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 potential for of the Proposed Scheme to result in a significant effect on any European site, either alone or in combination with other plans or projects.

84 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 the Stage One Screening appraisal.

85 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.

3.3.1 Habitat loss and fragmentation

86 The Proposed Scheme does not overlap with any European sites. The nearest European site to the Proposed Scheme is South Dublin Bay and River Tolka Estuary SPA, which is located approximately 900m away. The nearest European sites with a hydrological connection to the Proposed Scheme are South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC, which are located in Dublin Bay, approximately 1.38km downstream of the Proposed Scheme. Therefore there is no potential for direct habitat loss and fragmentation to occur. 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.

87 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. North Bull Island SPA, South Dublin Bay and River Tolka SPA, Malahide Estuary SPA, Baldoyle Bay SPA, Rogerstown Estuary SPA, Skerries Islands SPA, Ireland's Eye SPA, Lambay Island SPA and The Murrough SPA).

88 Two potential inland feeding sites immediately adjacent to the footprint of the Proposed Scheme were surveyed to inform this assessment, CBC0013WB001 located along the Allies River Road, off R119 Dublin Road and CBC0013WB002 located within the Shanganagh Park on R119 Dublin Road. Neither of these sites will be lost, but lands directly adjacent to them will be permanently modified. According to the data collected during wintering bird surveys undertaken here during both the 2020-2021 and 2021-2022 wintering bird survey season, neither of the sites are deemed to be a significant inland foraging resource

for light-bellied Brent goose or any other wetland bird species (e.g., geese, wader and / or swan 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. Considering this, the Proposed Scheme will not result in the loss of a suitable inland feeding site for these SCI bird species.

89 The Proposed Scheme will not result in temporary and / or permanent loss of inland sites within the Proposed Scheme footprint suitable to support breeding gull and wintering bird species. As only small numbers of birds were recorded during the two seasons of survey (2020/2021 and 2021/2022) at potential inland feeding sites immediately adjacent to the Proposed Scheme, and the lack of records of light-bellied Brent goose at these sites, they are not deemed to be a significant inland foraging resource. Therefore, there is no potential for impacts on SCI species associated with SPAs to occur as a result of habitat loss / fragmentation.

90 Regarding the two raptor species for which Wicklow Mountains SPA is designated, according to the Scottish Natural Heritage guidance (SNH 2016) 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. Likewise, during the breeding season merlin are known to forage within 5km of the next site. Wicklow Mountains SPA lies approximately 7.2km south-west 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.

91 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 within the ZoI of the Proposed Scheme. In terms of otter, while the Proposed Scheme does cross the Grand Canal, River Dodder, Brewery Stream, Shanganagh River and Rathmichael Stream, and terminates at the River Dargle, it does so at existing crossing locations within which, the rivers are either culverted or where there is a pre-existing bridge. As such they will not be subject to any instream works nor alteration to the territory currently occupied by otter.

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

92 The Proposed Scheme is hydrologically connected to Dublin Bay via the Dodder_50, Brewery Stream_010, Kill of the Grange Stream_010, Carrickmines Stream_010, Shanganagh_010, Dargle_040, South-western Irish Sea – Killiney Bay, and the Ringsend WwTP. The potential 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 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. It should be noted that a highly substantial event or events would be required to generate such quantities, which is considered unlikely.

93 The associated effects of a reduction of surface water quality could potentially extend for a considerable distance downstream of the location of the accidental pollution event or the discharge point and therefore impact the downstream waterbodies, i.e., in Dublin Bay and beyond, including the following European sites: South Dublin Bay SAC, Bray Head SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, Howth Head SAC, Lambay Island SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Howth Head Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill SPA. 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 within these European sites, which in turn would negatively affect the QI species, as well as 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 bird and QI species. These impacts could potentially occur to such a degree that the conservation objectives of the South Dublin Bay SAC, Bray Head SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, Howth Head SAC, Lambay Island SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Howth Head

Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill SPA may be undermined.

94 In a potential worst case scenario, in the absence of mitigation measures, 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 mobile SCI bird species and QI mammal species that commute, forage and loaf in Dublin Bay i.e. birds associated with South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Howth Head Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill SPA, marine mammals associated with Rockabill to Dalkey Island SAC and Lambay Island SAC, and otter associated with Wicklow Mountains SAC. This potential reduction in water quality (either alone or in combination with other pressures on water quality) could result in the degradation of sensitive habitats present within downstream European sites, which in turn would 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.

95 The QI habitats for which Bray Head and Howth Head SAC are 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 these SAC sites (NPWS 2013k; NPWS 2013l) and is not regarded to be a significant threat / pressure to this habitat at a national level (Barron *et al.,* 2011). Therefore, the QI habitats of Howth Head SAC and Bray 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.

96 As the Proposed Scheme has the potential to result in habitat degradation and effects on of the QIs / SCIs of European sites as the result of hydrological impacts, there is the potential for in combination effects to occur.

3.3.3 Habitat degradation effects as a result of hydrogeological impacts

97 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.

98 The underlying aquifers are either '*locally important bedrock aquifer, moderately productive only in local zones'*, '*poor aquifer - bedrock which is generally unproductive except for local zones'* or '*locally important aquifer - moderately productive only in local zones*'. These types of aquifers are associated with low permeability which decreases with depth. An upper shallow zone of higher permeability may exist in the top few meters and is associated with relatively short flow paths. Therefore, any influence on the groundwater as a result of the proposed works will be localised a will not extend to any groundwater dependant habitats which are all located over 1.5km from any proposed work. The unmitigated hydrogeological ZoI of the Proposed Scheme is not considered to extend to any groundwater dependent terrestrial ecosystems linked to European sites. This ZoI is determined by the professional judgement of the design team hydrogeology specialists.

99 In summary, the Proposed Scheme does not have the potential to result in habitat degradation of the QIs / SCIs of any European site as the result of hydrogeological impacts.

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

100 There are eighteen (18) areas of non-native invasive plant species (Giant hogweed, Himalayan balsam, and Japanese knotweed) listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 present within, or in close proximity to, the Proposed Scheme. In the absence of mitigation, there is potential for this to spread or be introduced, during construction and/or routine maintenance / management works, to terrestrial habitat areas in European sites downstream in Dublin Bay

and beyond (i.e., South Dublin Bay SAC, Bray Head SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, Howth Head SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Howth Head Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill SPA). The introduction and/or spread of these invasive species to downstream European sites could potentially result in the degradation of existing habitats present, in particular coastal habitats not permanently or regularly inundated by seawater. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. This in turn could undermine the conservation objectives of these European sites.

101 Although it is considered unlikely, there is potential that invasive species could spread to European sites which are located a significant distance from the outfall locations of the Dodder_50, Brewery Stream_010, Kill of the Grange Stream_010, Carrickmines Stream_010, Shanganagh_010, Dargle_040, South-western Irish Sea – Killiney Bay or Ringsend WwTP, and separated by a large marine waterbody (i.e. Howth Head SAC, Lambay Island SAC, Baldoyle Bay SPA, The Murrough SPA, Howth Head Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill SPA).

3.3.5 Habitat degradation as a result of air quality impacts

102 A reduction in air quality within the immediate vicinity of the construction works may occur as a consequence of dust deposition associated with these construction activities. This includes reduction in photosynthesis due to smothering from dust on the plants and chemical changes such as acidity to soils. Furthermore, emissions from car exhausts, and the deposition of particulate matter and heavy metals produced by engine, brake and tyre wear, can contribute to increased deposition of pollutants such as oxides of nitrogen (NOx, NOs), volatile organic compounds (VOCs), particulate matter (PM), heavy metals (HM) and ammonia (NH_4) 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.

103 The unmitigated ZoI for construction related air quality effects arising from the Proposed Scheme has the potential to extend 50m from the Proposed Scheme boundary, and 500m from the Construction Compounds during the Construction Phase. Vehicle emission related air quality effects arising from the Proposed Scheme has potential to extend up to 200m from the Proposed Scheme boundary or associated diversion roads during the construction year and the Operational Phase. There are no European sites present within these distances. The nearest European site, South Dublin Bay and River Tolka Estuary SPA, is located approximately 900m from the Proposed Scheme (as the crow flies) and is therefore not located within the ZoI of this potential impact.

104 As the Proposed Scheme does not have the potential to result in habitat degradation of the QIs/ SCIs of any European site as the result of air quality impacts, either during the Construction Phase or the Operational Phase, there is no potential for in combination effects to occur in that regard.

3.3.6 Disturbance and displacement impacts

105 A temporary and / or permanent increase in noise, vibration and/or human activity levels during the construction 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 150m[10]. For wintering birds, disturbance effects would

[10] This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (NRA, 2006)). This is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual ZoI of construction related disturbance likely to be much less in reality.

not be expected to extend beyond a distance of approximately 300m[11], 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 ZoI of the Proposed Scheme.

106 Although no signs of otter were recorded during field surveys of the Proposed Scheme, the River Liffey (and its tributaries), the Grand Canal, River Dodder, Brewery Stream, Shanganagh River, Rathmichael Stream, River Dargle and South Dublin Bay (i.e. watercourses within 1km of the Proposed Scheme) are known to support otter, an Annex II and IV mammal species. The nearest SAC to the proposed development site for which otter has been designated is Wicklow Mountains SAC which is located approximately 6.7km south-west, as the crow flies. 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 between 7-21km. Wicklow Mountains SAC is located within the same sub-catchments (Dodder_SC_010 and Dargle_SC_010) to the Proposed Scheme. The River Liffey and tributaries are known to support otter, and the current guidance in respect of the hydrological distance that territorial otters roam suggest a maximum territorial range of 21km for otter along suitable watercourses. Thus, watercourses in proximity to the Proposed Scheme are considered to hold QI otter populations associated of the Wicklow Mountains SAC, as the SAC falls within the territorial ranges of otter and is located within the same sub-catchment.

107 Although marine mammals associated with European sites may commute and forage within the Liffey and lower Dargle Estuaries, it is considered unlikely that there will be any impacts on these species as a result of the Proposed Scheme as the northern end of the Proposed Scheme is located approximately 1.17km south of the Liffey Estuary Upper, whilst the southern end is located approximately 58m east of the Dargle Estuary, in a highly urbanised environment and where water levels can drop diurnally reducing the likelihood of marine mammals venturing this far up-river. In addition to this, the scale of works proposed in the vicinity of the Liffey and Dargle Estuaries are considered to be minor.

108 Although no signs of kingfisher were recorded during field surveys of the Proposed Scheme, kingfisher, an Annex I bird species, are known to be present in the wider study area, in particular, along the River Liffey, River Camac, River Dodder 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 catchment[12]. The nearest SPA for which kingfisher has been designated is the River Boyne and Blackwater SPA which is located in a separate catchment approximately 39.7km away, therefore kingfisher present in the vicinity of the Proposed Scheme are not associated with an SPA population.

109 There are a number of SPAs 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., North Bull Island SPA, South Dublin Bay and River Tolka SPA, Malahide Estuary SPA, Baldoyle Bay SPA, Rogerstown Estuary SPA, Skerries Islands SPA, Lambay Island SPA, Ireland's Eye SPA and The Murrough SPA.). Five of these species were returned from the desk study and include light-bellied Brent goose, lapwing, blacked-headed gull, herring gull and lesser black-backed gull. Suitable inland foraging / roosting sites, which these bird species utilise, are located within the potential ZoI of the Proposed Scheme (See Section 3.2.3). Therefore, there is potential for the Proposed Scheme to result in the disturbance / displacement of SCI bird species associated with SPA populations.

[11] 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 approximately 300m, typical noise levels associated with construction activity (BS 5228) are generally below 60dB or, in most cases, are approaching the 50dB threshold.

12 RSPB. Kingfisher breeding, feeding and territory webpage. Available at: https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/kingfisher/breeding-feeding-territory/

110 Wicklow Mountains SPA, located approximately 7.2km south-west of the Proposed Scheme, has been designated for SCI species, peregrine *Falco peregrinus* and merlin *Falco columbarius.* Both species are known to occur in the wider study area. Most peregrine prey is taken within 2km of the eyrie and few birds are taken beyond 6km (Hardey *et al*., 2013). The home range of breeding merlin is unknown but it could be expected to be similar to peregrine considering they will defend their immediate nesting territory (Lusby *et al*., 2017; Hardey *et al*., 2013). Considering the distance between the Wicklow Mountains SPA and the Proposed Scheme, any peregrine and/or merlin recorded in its immediate vicinity, do not form part of the Wicklow Mountains SPA SCI populations. Therefore, there is no potential for the Proposed Scheme to result in the disturbance / displacement of SCI peregrine and / or merlin associated with SPA populations.

3.3.7 Summary

111 The 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 Qualifying Interests / Special Conservation Interests of a European site(s). Therefore, the potential for the Proposed Scheme to have significant effects on a European site(s) cannot be excluded.

112 As the Proposed Scheme itself is likely to affect the QIs / SCIs or conservation objectives of a European site(s), there is also the potential for other plans or projects to act in combination with it to result in likely significant effects on European sites.

113 The potential impacts of the Proposed Scheme on the receiving environment, their ZoI, and the European sites for which likely significant effects cannot be excluded are summarised in Table 9. In assessing the potential for the Proposed Scheme to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

Table 9: Summary of Analysis of Likely Significant Effects on European sites

Potential Direct, Indirect In Combination Effects and the ZoI of the Potential Effects	Are there any European sites within the ZoI of the Proposed Scheme?
Habitat loss No European sites are at risk of direct habitat loss impacts. There is no potential for loss of *ex-situ* inland feeding sites used by SCI wintering bird species (for the duration of the construction works).	No There are no European sites at risk of habitat loss or fragmentation.
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 downstream hydrological effects associated with the Proposed Scheme. South Dublin Bay SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, Lambay Island SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Howth Head Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill 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

Potential Direct, Indirect In Combination Effects and the ZoI of the Potential Effects	Are there any European sites within the ZoI of the Proposed Scheme?
Habitat degradation as a result of introducing / spreading non-native invasive species Habitat areas within, adjacent to, and potentially downstream of the Proposed Scheme.	Yes There are non-native invasive species present within or adjacent to the Proposed Scheme and, therefore, a risk associated with the Proposed Scheme to downstream European sites from the spread / introduction of non-native invasive species South Dublin Bay SAC, Bray Head SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA and North Bull Island SPA.
Air quality impacts Potentially up to 50m from the Proposed Scheme boundary and 500m from the Construction Compounds at Construction Phase, and up to 200 metres at Operational 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 are *ex situ* inland feeding sites which are utilised by SCI wintering bird species within the potential disturbance ZoI of the Proposed Scheme. South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA and Skerries Islands SPA.

3.4 In Combination Effects

114 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.

115 There are nineteen (19) European sites within the ZoI of the Proposed Scheme as outlined above. These are South Dublin Bay SAC, Bray Head SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, Howth Head SAC, Lambay Island SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Howth Head Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill SPA.

116 All other European sites fall beyond the ZoI 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.

117 The in combination assessment involved first identifying those plans and projects which have the potential to impact on those European sites within the ZoI of the Proposed Scheme.

118 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 ZoI of the Proposed Scheme. These are presented in Table 10 and Table 11.

Table 10: Land Use Plans and Programmes Considered for the In Combination Assessment

National Plans
National Energy & Climate Plan 2021-2030
Climate Action Plan 2023
National Spatial Strategy for Ireland 2002-2020;
Project Ireland 2040 – Building Ireland's Future[13]
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) 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
2022 Greater Dublin Area Cycle Network (Supercedes Greater Dublin Area Cycle Network Plan 2013)
Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study 2011-2016
County/Local Plans
Fingal Development Plan 2023-2029
Fingal Biodiversity Action Plan 2010-2015; Draft Fingal Biodiversity Action Plan 2022 -2030
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 2022-2028
Dublin City Biodiversity Action Plan 2021-2025
Dublin City Council Climate Action Plan 2019-2024 • Ballymun Local Area Plan 2017 (extended to 2027) • Naas Road Local Area Plan 2013-2023 • Park West- Cherry Orchard Local Area Plan 2019
South Dublin County 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

[13] Together the National Development Plan and the National Framework are referred to as Project Ireland 2040: Building Ireland's Future

Dún Laoghaire- Rathdown County Development Plan (2022-2028)

Dún Laoghaire- Rathdown Biodiversity Plan 2021-2025

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

- Stillorgan Local Area Plan 2018-2024
- Blackrock Local Area Plan 2015-2021 (extended to 2025)
- Woodbrook-Shanganagh Local Area Plan 2017-2024

Wicklow County Development Plan 2022-2028

Wicklow Biodiversity Plan 2010-2015

Wicklow County Council Climate Change Adaptation Strategy 2019

- Bray Municipal District Local Area Plan 2018-2024

Table 11: Projects Considered for the In Combination Assessment

- 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
- 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
- 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
- Cycling: Greater Dublin Area Cycle Network Plan (excluding Radial Core Bus Corridor elements)
- Dublin SPAR. Proposed 1.6km Southern Port Access Route (SPAR) which includes an opening bridge across the Liffey east of the existing Tom Clarke Bridge (East-Link Toll Bridge), has been identified in the Dublin Port Masterplan (“3FM Project”). The SPAR will be a private road which will take HGV

traffic destined to/from the port off the local public road network. It will also allow access for other HGV traffic such as to the Covanta Waste-to-Energy plant. The SPAR will include an active travel corridor open to the public. Construction is anticipated in 2026.

- Snugborough Interchange Upgrade
- 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.
- Alterations to a permitted double circuit 110kV electricity transmission line development between substations. Darndale / Belcamp.
- 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 créche) partically 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.
- Increase the capacity of the Dublin Waste to Energy Facility from 600,000 tonnes per annum to 690,000 tonnes per annum.
- Clutterland 110kV GIS Substation building and 2 underground single circuit transmission lines.
- Provision of two 110kV transmission lines. Connecting Coolderrig 110kV GIS Substation to Grange Castle - Kilmahud circuits.
- 2 no. 110kV transmission lines and a 110kV Gas Insulated Switchgear (GIS) substation.
- Build to Rent shared accommodation at Joyces Court off Foley Street.
- Emergency extension to Mater Hospital off Eccles Street.
- Proposed Apartment development at Graymount, Dungriffin Road.
- Advance Infrastructure works at site at Hackettstown, Skerries.
- Advance Infrastructure works at site at Castlelands, Balbriggan.
- Office Redevelopment of Protected Structure centred on Harcourt Street.
- Construction of residential unit in three apartment blocks.
- Residential development to replace car wash and associated facilities.
- Demolition of commercial buildings and construction of 54 apartments centred on Seapoint Road, Bray.
- Construction of 6-storey building including residential and commercial units, Bray.
- Construction of 49 apartments, centred on Castle Street, Bray.
- Change of use from retail to 25 residential apartments, Bray Central development.
- Demolition of 5 storey office development and replacement with residential units at Eglinton Road, Dublin.
- Redevelopment of Canal House at 2-6 Dunville Terrace, Dublin.
- Development of Protected Structure at 18-21 St Stephens Green Dublin 2.
- Development of Protected Structure at number 22 St Stephens Green Dublin 2.
- Development of Protected Structure at National Concert Hall.
- Demolition and redevelopment of existing office block and construction of new 9 storey office block, Dublin.
- Four-storey mixed used development at Mespil Court, Mespil Road and Burlington Road, Dublin 4.
- Development of Protected Structure at 92 and 93 St Stephens Green Dublin 2.

- Rejuvenation of St Stephens Green Shopping centre involving internal reconfiguration and partial redevelopment.
- Development of Protected Structure at 35 Harcourt Street and extending to 35 35 Camden Place Dublin 2.
- Demolition of existing st4ructure and redevelopment of site facing towards Harcourt Rad/Adelaide Road.
- Demolition of 4 storey building and construction of student accommodation, Montrose, Dublin.
- Demolition of 2 storey dwelling and construction 5 storey BTR later living facility.
- Residential and mixed use development at Plot T11, Cherry wood SDZ Planning Scheme.
- Development of lands including area around protected structure (water tower) to facilitate expansion of sports facilities, UCD sports and amenities precinct.
- Installation of solar photovoltaic panels on existing building.
- Residential development at Plot TC6, Cherry wood SDZ Planning Scheme.
- Development of specialist hospital and ancillary features at "The Aske", (a protected structure) Old Dublin Road, Bray.
- Residential development comprising 65 dwellings near Lehaunstown Lane, Cherry wood SDZ Planning Scheme.
- Residential development at Plot T11, Cherrywood SDZ Planning Scheme.
- Residential development at Plot T3, Cherrywood SDZ Planning Scheme.
- Build to Rent development around Village Green, Gun and Drum Hill.
- Mixed use development at Blocks B1, B2, B3, B4 , Cherrywood SDZ Planning Scheme.
- Site development and removal of existing ground carpark near Luas terminus, Cherrywood SDZ Planning Scheme.
- Residential development at boundary to Castle Stret and Beckett Park , Cherrywood SDZ Planning Scheme.
- Residential development comprising 89 units centred on Castle Street, Cherrywood SDZ Planning Scheme.
- Clongriffin to City Centre Core Bus Corridor Scheme
- Swords to City Centre Core Bus Corridor Scheme
- Ballymun / Finglas to City Centre Core Bus Corridor Scheme
- Blanchardstown to City Centre Core Bus Corridor Scheme
- Lucan to City Centre Core Bus Corridor Scheme
- Liffey Valley to City Centre Core Bus Corridor Scheme
- Tallaght / Clondalkin to City Centre Core Bus Corridor Scheme
- Kimmage to City Centre Core Bus Corridor Scheme
- Templeogue / Rathfarnham to City Centre Core Bus Corridor Scheme
- Belfield / Blackrock to City Centre Core Bus Corridor Scheme
- Ringsend to City Centre Core Bus Corridor Scheme
- A range of Strategic Housing Developments (SHDs)
- A range of Large Scale Residential Developments (LRDs)
- GDA Transport Strategy Park and Ride (All Included despite distance as hydrological connectivity)
- A range of Irish Water Projects

119 There is the potential for developments listed in Table 11, or those implemented under a range of land use and other plans listed in Table 10, 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.

120 Key development projects with potential for in-combination effects due to their size, nature and/or location include other Core Bus Corridor Schemes, upgrades to or new rail infrastructure, utility infrastructure including proposed or consented water utility improvement.

121 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 9 for the Proposed Scheme (i.e. hydrological, non-native invasive species, and disturbance and displacement effects) which could act in combination with similar effects and pathways arising from the various plans.

122 Therefore the potential for the following in combination effects arising from plans cannot be ruled out:

- 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 South Dublin Bay SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, Lambay Island SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Howth Head Coast SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA, Skerries Islands SPA and Rockabill SPA;
- Habitat degradation as a result of introducing / spreading non-native invasive species for South Dublin Bay SAC, Bray Head SAC, Rockabill to Dalkey Island SAC, North Dublin Bay SAC, Wicklow Mountains SAC, South Dublin Bay and River Tolka Estuary SPA, Dalkey Island SPA and North Bull Island SPA; 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 Estuary SPA, North Bull Island SPA, Baldoyle Bay SPA, The Murrough SPA, Ireland's Eye SPA, Malahide Estuary SPA, Rogerstown Estuary SPA, Lambay Island SPA and Skerries Islands SPA.

4 Conclusions of Screening Assessment Process

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

124 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.

125 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 nineteen no. European sites (7 no. SACs and 12 no. SPAs) and consequently, the preparation of a Natura Impact Statement (NIS).

5 References

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

BSBI (2022) *Botanical Society of Britain and Ireland* Maps [Online] Available from bsbi.org/maps.

Chartered Institute of Ecology and Environmental Management (2022) *Guidelines for Ecological Impact Assessment in the UK and Ireland.*

Cutts, N., Phelps, A., Burdon, D. (2009) *Construction and Waterfowl: Defining Sensitivity, Response, Impact and Guidance.* Report prepared by the Institute of Estuarine and Coastal Studies University of Hull and Humber INCA.

Department of Environment, Heritage and Local Government (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities.*

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

Dún Laoghaire-Rathdown County Council (2009).*Dún Laoghaire- Rathdown Biodiversity Plan 2021-2025*

EPA (2022) *EPA Maps* [Online] Available from gis.epa.ie/EPAMaps/.

European Commission (2000) *Communication from the Commission on the Precautionary Principle.*

European Commission (2013) *Interpretation Manual of European Union Habitats*. Version EUR 28.

European Commission (2019) *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC.*

European Commission (2021) *Assessment of Plans and Projects in Relation to Affecting Natura 2000 sites: Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC*.

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

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

Gilbert, G., Gibbons, D. W. & Evans, J. (1998). *Bird Monitoring Methods.* RSPB, Sandy.

Gilbert, G., Stanbury, A. & Lewis, L. (2021) *Birds of Conservation Concern in Ireland 4: 2020-2026*. Irish Birds 43: 1-22 (2021).

GSI (2016) *Quaternary geology of Ireland – Sediments Map*. [Online] Available from https://secure.dccae.gov.ie/arcgis/rest/services/Quaternary/QuaternarySediments16/MapServer.

Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013) *Raptors: A Field Guide for Surveys and Monitoring*. Scottish Natural Heritage.

Lusby, J., Corkery, I., McGuiness, S., Fernández-Bellon, D., Toal, L., Norriss, D., Breen, D., O'Donaill, A., Clarke, D., Irwin, S., Quinn, J.L. and O'Halloran, J. (2017) *Breeding ecology and habitat selection of Merlin Falco columbarius in forested landscapes*. Bird Study.

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.

NBDC (2023) *National Biodiversity Data Centre Database* [Online] Available from maps.biodiversityireland.ie/Map.

NPWS (2010) *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular NPW 1/10 & PSSP 2/10.

NPWS (2012) *Conservation Objectives: Baldoyle Bay SAC 000199*. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013a) *Conservation Objectives: South Dublin Bay SAC 000210*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013b) *Conservation Objectives: Rockabill to Dalkey Island SAC 003000*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013c) *Conservation Objectives: North Dublin Bay SAC 000206*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013d) *Conservation Objectives: Malahide Estuary SAC 000205*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013e) *Conservation Objectives: Lambay Island SAC 000204*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013f) *Conservation Objectives: Baldoyle Bay SPA 004016*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013g) *Conservation Objectives: Malahide Estuary SPA 004025*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013h) *Conservation Objectives: Rogerstown Estuary SPA 004015*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013i) *Conservation Objectives: Rogerstown Estuary SAC* 000208. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013j) *Conservation Objectives: Rockabill SPA 004014*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013k) *Site Synopsis. Site Name: Howth Head SAC. Site Code: 000202*. Version date: 12.08.2013. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013l) *Site Synopsis. Site Name: Bray Head SAC. Site Code: 000714*. Version date: 23.09.2013. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

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.

NPWS (2015b) *Conservation Objectives: North Bull Island SPA 004006*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2016) *Conservation Objectives: Howth Head SAC 000202*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2017a) *Conservation Objectives: Bray Head SAC 000714*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2017b) *Conservation Objectives: Wicklow Mountains SAC 002122*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2017c) *Conservation Objectives: Ireland's Eye SAC 002193*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2019a) *Conservation Objectives: Ballyman Glen SAC 000713*. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2019b) *Conservation Objectives: Carriggower Bog SAC 000716*. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2020) *Conservation Objectives: Glen of the Downs SAC 000719*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2021a) *Conservation Objectives: Knocksink Wood SAC 000725.* Version 1.0., Department Housing, Local Government and Heritage.

NPWS (2021b) *Conservation Objectives: Glenasmole Valley SAC 001209.* Version 1.0. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2021c) *Conservation objectives for Rye Water Valley/Carton SAC [001398*]. Version 1.0. Department of Housing, Local Government and Heritage.

NPWS (2022a) *Conservation objectives for Dalkey Islands SPA [004172].* First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

NPWS (2022b) *Conservation objectives for Wicklow Mountains SPA [004040].* First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

NPWS (2022c) *Conservation objectives for The Murrough SPA [004186].* First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

NPWS (2022d) *Conservation objectives for Howth Head Coast SPA [004113].* First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

NPWS (2022e) *Conservation objectives for Ireland's Eye SPA [004117].* First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

NPWS (2022f) *Conservation objectives for Lambay Island SPA [004069].* First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

NPWS (2022g) *Conservation objectives for Skerries Islands SPA [004122].* First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.

NRA (2006) Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes.

Office of Planning Regulator (2021) *Appropriate Assessment Screening for Development Management: Office of the Planning Regulator - Practice Note PN01*.

Ó Néill, L., Veldhuizen, T., de Jongh, A. and Rochford, J. (2009) *Ranging behaviour and socio-biology of Eurasian otters (Lutra lutra) on lowland mesotrophic river systems*. European Journal of Wildlife Research: 55: 363-370.

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.*

Scott Cawley Ltd. (2022) *Non-native Invasive Species Management Plan.*

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

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

Svensson, L., Mullarney, K., Zetterstrom, D., Grant, P.J. (2010) *Collins Bird Guide: The Most Complete Guide to the Birds of Britain and Europe.* Second Ed. HarperCollins Publishers Limited, 2011.

Wright, M., Goodman, P., Cameron, T. (2010) *Exploring Behavioural Responses of Shorebirds to Impulse Noise*. Wildfowl (2010) 60: 150-167.

Directives and Legislation

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (The Habitats Directive).

Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (The Birds Directive).

Planning and Development Acts 2000 (as amended).

S.I. No. 477/2011 – European Communities (Birds and Natural Habitats) Regulations 2011.

S.I No 355/2015 – European Communities (Birds and Natural Habitats) (Amendment) Regulations 2015.

S.I. No. 235/2015 – Flora (Protection) Order, 2022.

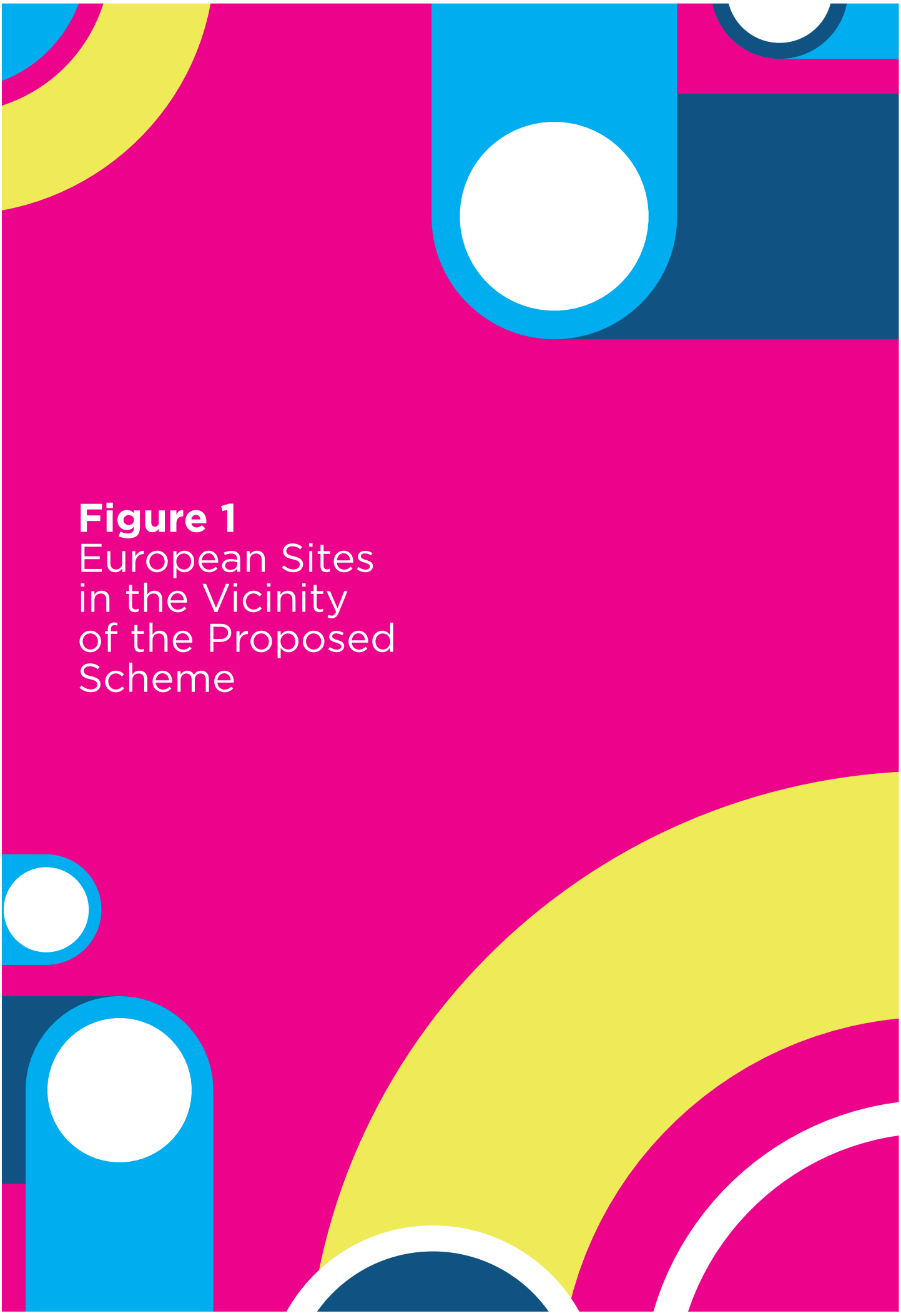
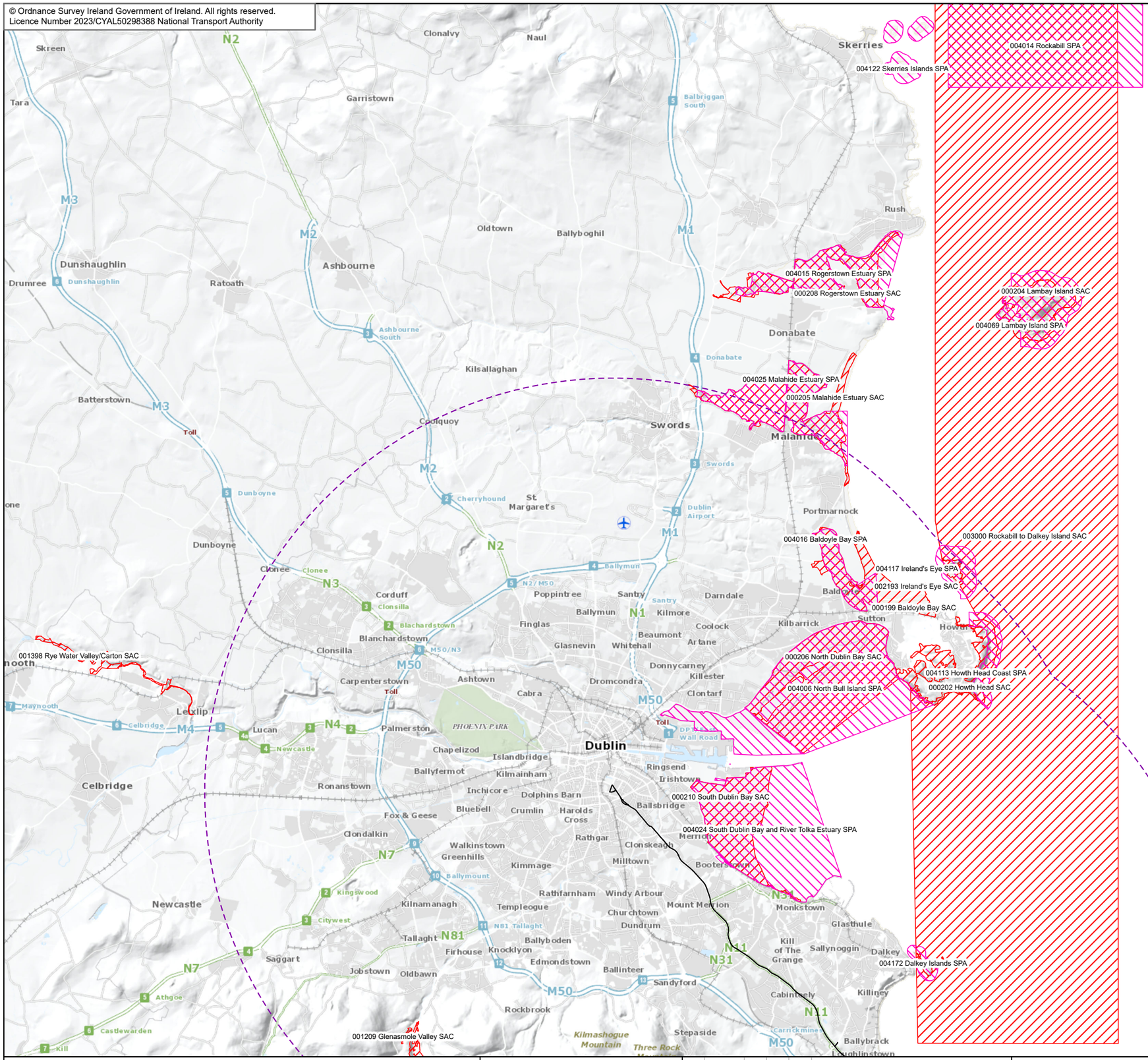


Figure 1
European Sites in the Vicinity of the Proposed Scheme



Legend :

- Bray to City Centre Core Bus Corridor Scheme
- 15km Study Area
- Special Protection Areas (SPA)
- Special Area of Conservation (SAC)

0 1.5 3 4.5 6 7.5 km

BAR SCALE

Project Ireland 2040 Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	May 2023	TJ	PW	DK	ISSUE FOR PHASE 4: PLANNING

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Consultant: Jacobs ARUP SYSTRA

Date	Scale @ A3	Drawn	Checked	Approved
11/05/2023	1:150 000	TJ	PW	DK

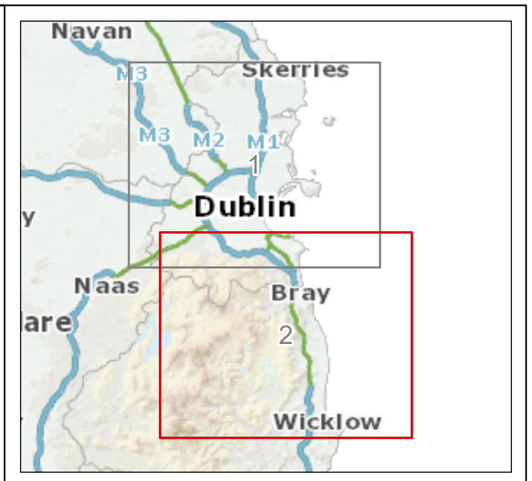
Project Code	Originator Code	QMS Code
BCIDE	JAC	

Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: Bray to City Centre Core Bus Corridor Scheme
Figure 1
European sites in the Vicinity of the Proposed Scheme

Drawing File Name	Sheet Number	Status	Rev
BCIDE-JAC-ENV_BD-0013_XX_00-DR-GG-2090	1 of 2	A	M01

004024 South Dublin Bay and River Tolka Estuary SPA
000210 South Dublin Bay SAC
003000 Rockabill to Dalkey Island SAC
004172 Dalkey Islands SPA
001209 Glenasmole Valley SAC
002122 Wicklow Mountains SAC
004040 Wicklow Mountains SPA
000725 Knocksink Wood SAC
000713 Ballyman Glen SAC
000714 Bray Head SAC
000719 Glen of the Downs SAC
004063 Poulaphouca Reservoir SPA
000716 Carriggower Bog SAC
004186 The Murrough SPA
002249 The Murrough Wetlands SAC
004127 Wicklow Head SPA
002274 Wicklow Reef SAC
000733 Vale of Clara (Rathdrum Wood) SAC
000717 Deputy's Pass Nature Reserve SAC



Legend :

- Bray to City Centre Core Bus Corridor Scheme
- 15km Study Area
- Special Protection Areas (SPA)
- Special Area of Conservation (SAC)

0 1.5 3 4.5 6 7.5 km
BAR SCALE

Project Ireland 2040
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	May 2023	TJ	PW	DK	ISSUE FOR PHASE 4: PLANNING

Client: NTA — Údarás Náisiúnta Iompair, National Transport Authority
Consultant: Jacobs ARUP SYSTRA

Date	Scale @ A3	Drawn	Checked	Approved
11/05/2023	1:150 000	TJ	PW	DK

Project Code	Originator Code	QMS Code
BCIDE	JAC	

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: Bray to City Centre Core Bus Corridor Scheme
Figure 1
European sites in the Vicinity of the Proposed Scheme

Drawing File Name	Sheet Number	Status	Rev
BCIDE-JAC-ENV_BD-0013_XX_00-DR-GG-2091	2 of 2	A	M01

Appendix I

The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the European sites in the Vicinity of the Proposed Development Scheme

Appendix I

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

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
Special Area of Conservation (SAC)	
South Dublin Bay SAC [000210] 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 *Salicornia* and other annuals colonising mud and sand 2110 Embryonic shifting dunes *S.I. No. 525/2019 – European Union Habitats (South Dublin Bay Special Area of Conservation 000210) Regulations 2019* NPWS (2013a) *Conservation Objectives: South Dublin Bay SAC 000210.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 1.1km east of the Proposed Scheme
Bray Head SAC [000714] 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths *S.I. No. 620/2017 - European Union Habitats (Bray Head Special Area of Conservation 000714) Regulations 2017* NPWS (2017a) *Conservation Objectives: Bray Head SAC 000714*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	Approximately 1.7km south of the Proposed Scheme
Ballyman Glen SAC [000713] 7220 Petrifying springs with tufa formation (Cratoneurion)* 7230 Alkaline fens *S.I. No. 92/2019 - European Union Habitats (Ballyman Glen Special Area Of Conservation 000713) Regulations 2019* NPWS (2019a) Conservation Objectives: Ballyman Glen SAC 000713. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.	Approximately 1.7km south of Proposed Scheme
Rockabill to Dalkey Island SAC [003000] 1170 Reefs 1351 Harbour porpoise *Phocoena phocaena* *S.I. No. 94/2019 - European Union Habitats (Rockabill To Dalkey Island Special Area Of Conservation 003000) Regulations 2019* NPWS (2013b) *Conservation Objectives: Rockabill to Dalkey Island SAC 003000.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 2.6km east of the Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
Knocksink Wood SAC [000725] 7220 Petrifying springs with tufa formation (Cratoneurion)*; 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles; and 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)*. *S.I. No. 93/2019 - European Union Habitats (Knocksink Wood Special Area of Conservation 000725) Regulations 2019* NPWS (2021a) *Conservation Objectives: Knocksink Wood SAC 000725*. Version 1.0., Department Housing, Local Government and Heritage.	Approximately 3.6km south of 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 *Salicornia* and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1395 Petalwort *Petalophyllum ralfsii* 1410 Mediterranean salt meadows (Juncetalia maritimi) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks *S.I. No. 524/2019 – European Union Habitats (North Dublin Bay Special Area of Conservation 000206) Regulations 2019* NPWS (2013c) *Conservation Objectives: North Dublin Bay SAC 000206.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 5.5km north of the Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
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 *Erica tetralix* 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 *Ilex* and *Blechnum* in the British Isles 1355 Otter *Lutra lutra* NPWS (2017b) *Conservation Objectives: Wicklow Mountains SAC 002122.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	Approximately 6.7km south-west of the Proposed Scheme
Glen of the Downs SAC [000719] 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles *S.I. No. 178/1980 - Nature Reserve (Glen of the Downs) Establishment Order, 1980.* NPWS (2020) *Conservation Objectives: Glen of the Downs SAC 000719*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.	Approximately 6.9km south of the Proposed Scheme
Howth Head SAC [000202] 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths *S.I. No. 524/2021 – European Union Habitats (Howth Head Special Area of Conservation 000202) Regulations 2021* NPWS (2016) *Conservation Objectives: Howth Head SAC 000202.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	Approximately 10.4km north of the Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
Baldoyle Bay SAC [000199] 1140 Mudflats and sandflats not covered by seawater at low tide 1310 *Salicornia* and other annuals colonizing mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) *S.I. No. 472/2021 – European Union Habitats (Baldoyle Bay Special Area of Conservation 000199) Regulations 2021* NPWS (2012) *Conservation Objectives: Baldoyle Bay SAC 000199.* Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 10.9km north of Proposed Scheme
Glenasmole Valley SAC [001209] 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 7220 Petrifying springs with tufa formation (Cratoneurion)* *S.I. No. 345/2021 – European Union Habitats (Glenasmole Valley Special Area of Conservation 001209) Regulations 2021* NPWS (2021b) Conservation Objectives: Glenasmole Valley SAC 001209. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.	Approximately 11.1km south west of the Proposed Scheme
Carriggower Bog SAC [000716] 7140 Transition mire and quaking bogs *S.I. No. 293/2018 - European Union Habitats (Carriggower Bog Special Area of Conservation 000716) Regulations 2018* NPWS (2019b) Conservation Objectives*:* Carriggower Bog SAC 000716. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.	Approximately 11.3km south of the Proposed Scheme
Malahide Estuary SAC [000205] 1140 Mudflats and sandflats not covered by seawater at low tide 1310 *Salicornia* and other annuals colonising mud and sand 1320 *Spartina* swards (Spartinion maritimae) 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* *S.I. No. 91/2019 – European Union Habitats (Malahide Estuary Special Area of Conservation 000205) Regulations 2019* NPWS (2013d) *Conservation Objectives: Malahide Estuary SAC 000205.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 13.9km north of the Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
Ireland's Eye SAC [002193] 1220 Perennial vegetation of stony banks 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts *S.I. No. 501/2017 – European Union Habitats (Ireland's Eye Special Area of Conservation 002193) Regulations 2017* NPWS (2017c) *Conservation Objectives: Ireland's Eye SAC 002193.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.	Approximately 14.3km north of the Proposed Scheme
Rye Water Valley/Carton SAC [001398] 7220 Petrifying springs with tufa formation (Cratoneurion)* 1014 Narrow-mouthed Whorl Snail *Vertigo angustior* 1016 Desmoulin's Whorl Snail *Vertigo moulinsiana* *S.I. No. 494/2018 - European Union Habitats (Rye Water Valley/Carton Special Area of Conservation 001398) Regulations 2018* NPWS (2021c) *Conservation objectives for Rye Water Valley/Carton SAC [001398].* Version 1.0. Department of Housing, Local Government and Heritage.	Approximately 15.7km north west of the Proposed Scheme
Rogerstown Estuary SAC [000208] 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1310 *Salicornia* and other annuals colonising mud and sand 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 1410 Mediterranean salt meadows (*Juncetalia maritimi*) 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* *S.I. No. 286/2018 - European Union Habitats (Rogerstown Estuary Special Area of Conservation 000208) Regulations 2018* NPWS (2013i) *Conservation Objectives: Rogerstown Estuary SAC 000208*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 18.4km north of the Proposed Scheme
Lambay Island SAC [000204] 1170 Reefs 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 1364 Grey seal *Halichoerus grypus* 1365 Harbour seal *Phoca vitulina* *S.I. No. 294/2019 – European Union Habitats (Lambay Island Special Area of Conservation 000204) Regulations 2019* NPWS (2013e) *Conservation Objectives: Lambay Island SAC 000204.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 22.3km north east of Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
Special Protection Area (SPA)	
South Dublin Bay and River Tolka Estuary SPA [004024] A046 Light-bellied Brent Goose *Branta bernicla hrota* A130 Oystercatcher *Haematopus ostralegus* A137 Ringed Plover *Charadrius hiaticula* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina* A157 Bar-tailed Godwit *Limosa lapponica* A162 Redshank *Tringa totanus* A179 Black-headed Gull *Chroicocephalus ridibundus* A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea* A999 Wetland and Waterbirds *S.I. No. 212/2010 – European Communities (Conservation of Wild Birds (South Dublin Bay and River Tolka Estuary Special Protection Area 004024)) Regulations 2010.* 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 900m east of the Proposed Scheme
Dalkey Islands SPA [004172] A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea* *S.I. No. 238/2010 – European Communities (Conservation of Wild Birds (Dalkey Islands Special Protection Area 004172)) Regulations 2010* NPWS (2022a) *Conservation objectives for Dalkey Islands SPA [004172].* First Order Site-Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.	Approximately 3.9km east of the Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
North Bull Island SPA [004006] A046 Light-bellied Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A052 Teal *Anas crecca* A054 Pintail *Anas acuta* A056 Shoveler *Anas clypeata* A130 Oystercatcher *Haematopus ostralegus* A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A144 Sanderling *Calidris alba* A149 Dunlin *Calidris alpina* A156 Black-tailed Godwit *Limosa limosa* A157 Bar-tailed Godwit *Limosa lapponica* A160 Curlew *Numenius arquata* A162 Redshank *Tringa totanus* A169 Turnstone *Arenaria interpres* A179 Black-headed Gull *Chroicocephalus ridibundus* A999 Wetlands & Waterbirds *S.I. No. 211/2010 – European Communities (Conservation of Wild Birds (North Bull Island Special Protection Area 004006)) Regulations 2010.* NPWS (2015b) *Conservation Objectives: North Bull Island SPA 004006.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 5.5km north-east of the Proposed Scheme
Wicklow Mountains SPA [004040] A098 Merlin *Falco columbarius* A103 Peregrine *Falco peregrinus* *S.I. No. 586/2012 – European Communities (Conservation of Wild Birds (Wicklow Mountains Special Protection Area 004040)) Regulations 2012.* NPWS (2022b) *Conservation objectives for Wicklow Mountains SPA [004040].* First Order Site-Specific Conservation Objectives Version 1.0.. Department of Housing, Local Government and Heritage.	Approximately 7.2km east of the Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
Baldoyle Bay SPA [004016] A046 Light-bellied Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A137 Ringed Plover *Charadrius hiaticula* A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola* A157 Bar-tailed Godwit *Limosa lapponica* A999 Wetland and Waterbirds *S.I. No. 275/2010 – European Communities (Conservation of Wild Birds (Baldoyle Bay Special Protection Area 004016)) Regulations 2010.* NPWS (2013f) *Conservation Objectives: Baldoyle Bay SPA 004016. Version 1.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 11km north of Proposed Scheme
The Murrough SPA [004186] A001 Red-throated Diver *Gavia stellata* A043 Greylag Goose *Anser anser* A046 Light-bellied Brent Goose *Branta bernicla hrota* A050 Wigeon *Anas penelope* A052 Teal *Anas crecca* A179 Black-headed Gull *Chroicocephalus ridibundus* A184 Herring Gull *Larus argentatus* A195 Little Tern *Sterna albifrons* *S.I. No. 298/2011 – European Communities (Conservation of Wild Birds (The Murrough Special Protection Area 004186)) Regulations 2011.* NPWS (2022c) *Conservation objectives for The Murrough SPA [004186].* First Order Site-Specific Conservation Objectives Version 1.0.. Department of Housing, Local Government and Heritage.	Approximately 12km south of Proposed Scheme
Howth Head Coast SPA [004113] A188 Kittiwake *Rissa tridactyla* *S.I. No. 185/2012 – European Communities (Conservation of Wild Birds (Howth Head Coast Special Protection Area 004113)) Regulations 2012.* NPWS (2022d) *Conservation objectives for Howth Head Coast SPA [004113].* First Order Site-Specific Conservation Objectives Version 1.0.. Department of Housing, Local Government and Heritage.	Approximately 12.2km north of the Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
Ireland's Eye SPA [004117] A017 Cormorant *Phalacrocorax carbo* A184 Herring Gull *Larus argentatus* A188 Kittiwake *Rissa tridactyla* A199 Guillemot *Uria aalge* A200 Razorbill *Alca torda* *S.I. No. 240/2010 – European Communities (Conservation of Wild Birds (Ireland's Eye Special Protection Area 004117)) Regulations 2010.* NPWS (2022e) *Conservation objectives for Ireland's Eye SPA [004117].* First Order Site-Specific Conservation Objectives Version 1.0.. Department of Housing, Local Government and Heritage.	Approximately 14.1km north of the Proposed Scheme
Malahide Estuary SPA [004025] A005 Great Crested Grebe *Podiceps cristatus* A046 Light-bellied Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A054 Pintail *Anas acuta* A067 Goldeneye *Bucephala clangula* A069 Red-breasted Merganser *Mergus serrator* A130 Oystercatcher *Haematopus ostralegus* A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A149 Dunlin *Calidris alpina* A156 Black-tailed Godwit *Limosa limosa* A157 Bar-tailed Godwit *Limosa lapponica* A162 Redshank *Tringa totanus* A999 Wetland and Waterbirds *S.I. No. 285/2011 – European Communities (Conservation of Wild Birds (Malahide Estuary Special Protection Area 004025)) Regulations 2011.* NPWS (2013g) *Conservation Objectives: Malahide Estuary SPA 004025.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 14km north of the Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
Rogerstown Estuary SPA [004015] A043 Greylag Goose *Anser anser* A046 Brent Goose *Branta bernicla hrota* A048 Shelduck *Tadorna tadorna* A056 Shoveler *Anas clypeata* A130 Oystercatcher *Haematopus ostralegus* A137 Ringed Plover *Charadrius hiaticula* A141 Grey Plover *Pluvialis squatarola* A143 Knot *Calidris canutus* A149 Dunlin *Calidris alpina alpina* A156 Black-tailed Godwit *Limosa limosa* A162 Redshank *Tringa totanus* A999 Wetlands *S.I. No. 271/2010 – European Communities (Conservation of Wild Birds (Rogerstown Estuary Special Protection Area 004015) Regulations 2010.* NPWS (2013h) *Conservation Objectives: Rogerstown Estuary SPA 004015*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 18.7km north of the Proposed Scheme
Lambay Island SPA [004069] A009 Fulmar *Fulmarus glacialis* A017 Cormorant *Phalacrocorax carbo* A018 Shag *Phalacrocorax aristotelis* A043 Greylag Goose *Anser anser* A183 Lesser Black-backed Gull *Larus fuscus* A184 Herring Gull *Larus argentatus* A188 Kittiwake *Rissa tridactyla* A199 Guillemot *Uria aalge* A200 Razorbill *Alca torda* A204 Puffin *Fratercula arctica* *S.I. No. 242/2010 – European Communities (Conservation of Wild Birds (Lambay Island Special Protection Area 004069)) Regulations 2010.* NPWS (2022f) *Conservation objectives for Lambay Island SPA [004069].* First Order Site-Specific Conservation Objectives Version 1.0.. Department of Housing, Local Government and Heritage.	Approximately 22.1km north east of Proposed Scheme

European Site Name [Code] and its Qualifying interests / Special Conservation Interests (*Priority Annex I Habitats)	Location Relative to the Proposed Scheme Site
Skerries Islands SPA [004122] A017 Cormorant *Phalacrocorax carbo* A018 Shag *Phalacrocorax aristotelis* A046 Brent Goose *Branta bernicla hrota* A148 Purple Sandpiper *Calidris maritima* A169 Turnstone *Arenaria interpres* A184 Herring Gull *Larus argentatus* *S.I. No. 245/2010 – European Communities (Conservation of Wild Birds (Skerries Islands Special Protection Area 004122)) Regulations 2010.* NPWS (2022g) *Conservation objectives for Skerries Islands SPA [004122* First Order Site-Specific Conservation Objectives Version 1.0.. Department of Housing, Local Government and Heritage.	Approximately 28km north of the Proposed Scheme
Rockabill SPA [004014] A148 Purple Sandpiper *Calidris maritima* A192 Roseate Tern *Sterna dougallii* A193 Common Tern *Sterna hirundo* A194 Arctic Tern *Sterna paradisaea* *S.I. No. 94/2012 - European Communities (Conservation of Wild Birds (Rockabill Special Protection Area 004014)) Regulations 2012.* NPWS (2013j) *Conservation Objectives: Rockabill SPA 004014*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.	Approximately 28km north of the Proposed Scheme

NTA

Údarás Náisiúnta Iompair
National Transport Authority

National Transport Authority
Dún Scéine
Harcourt Lane
Dublin 2
D02 WT20

Project Ireland 2040
Building Ireland's Future