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Point Bridge and Tom Clarke Bridge Widening Project

Ground Investigation Works and Environmental Surveys

Supporting Information for Screening for Appropriate Assessment



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TABLE OF CONTENTS

1.	ΙΝΤΙ	RODUCTION1				
	1.1	Background	. 1			
	1.2	Competent Experts	.1			
	1.3	Legislative Context	. 1			
	1.4	Screening Methodology	.3			
	1.5	Ecological Assessment	.4			
		1.5.1 Desk Studies	.4			
		1.5.2 Assessment	.4			
2.	DES	CRIPTION OF THE WORKS	. 5			
	2.1	Overview	.5			
	2.2	Location	.5			
	2.3	Outline of the Works	.5			
		2.3.1 General Layout	.5			
		2.3.2 Schedule of Investigations	.7			
		2.3.3 Timing and Duration	10			
		2.3.4 Potential Impacts on the Natural Environment	10			
3.	IDE	NTIFICATION OF LIKELY SIGNIFICANT EFFECTS	11			
	3.1	Establishing the Zone of Influence	11			
	3.2	Site Descriptions	13			
		3.2.1 South Dublin Bay and River Tolka Estuary SPA	13			
		3.2.2 North Bull Island SPA	15			
		3.2.3 North Dublin Bay SAC	17			
		3.2.4 Rockabill to Dalkey Island SAC [003000]	19			
		3.2.5 Wicklow Mountains SAC	20			
		3.2.6 North-west Irish Sea SPA	22			
	3.3	Evaluation against Conservation Objectives	24			
	3.4	Summary of Likely Significant Effects	45			
4.	IN-C	OMBINATION EFFECTS	46			
	4.1	Introduction	46			
	4.2	Methodology	46			
	4.3	Outcome	46			
5.	CON	ICLUSION	66			
6.	REF	ERENCES	67			

APPENDIX A GI LOCATION DRAWINGS

APPENDIX B ZONE OF INFLUENCE

1. INTRODUCTION

1.1 Background

Roughan & O'Donovan (ROD) was appointed by Dublin City Council to undertake, on its behalf, a Supporting Information for Screening for Appropriate Assessment (SISAA) Report in support of a licence application to Maritime Area Regulatory Authority (MARA), for Maritime Usage. The licence application is in respect of ground investigation works ("the Works") and marine environmental surveys for the purposes of site investigation ("the environmental surveys") to inform the design of the Point Bridge and Tom Clarke Bridge Widening Project in Dublin City.

The SISAA Report is essentially an Appropriate Assessment (AA) Screening Report and serves the same function. The SISAA Report is intended to determine whether or not the Works and the environmental surveys, either individually or in combination with other plans or projects, in view of best scientific knowledge, is likely to have a significant effect on areas designated as being of European importance for nature conservation ("European sites"), thereby enabling MARA, as the Competent Authority in this case, to fulfil its obligations under Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive").

This document comprises the SISAA Report in respect of the Works and the environmental surveys and has been prepared by ROD on behalf of Dublin City Council in accordance with the requirements of the Habitats Directive and the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) ("the Habitats Regulations"). The aim of this SISAA Report is to inform and assist the Competent Authority in carrying out its AA Screening by determining whether or not the Works and the environmental surveys, either individually or in combination with other plans and projects, have the potential to significantly affect one or more European sites in view of their Conservation Objectives.

It is the considered opinion of ROD, as the author of this SISAA Report, that the Works and the environmental surveys, either individually or in combination with other plans or projects, in view of best scientific knowledge, are not likely to have a significant effect on any European site.

1.2 Competent Experts

The SISAA Report was prepared by **Exercise** The report was reviewed by **Exercise** is a Graduate Ecologist with 6 months experience in ecological consultancy. She holds a BS degree in Wildlife Biology from the University of Montana. **Exercise** is an Ecologist with five years' experience in ecological consultancy. She holds a BA (Hons) degree in Natural Sciences (Zoology) from Trinity College Dublin and is an Associate Member of the Chartered Institute of Ecology and Environmental Management (ACIEEM).

1.3 Legislative Context

Council Directive 92/43/EEC of the 21st May 1992 on the conservation of natural habitats of wild fauna and flora ("the Habitats Directive") and Directive 2009/147/EC of the European Parliament and of the Council of the 30th November 2009 on the conservation of wild birds ("the Birds Directive") list habitats and species which are, in a European context, important for conservation and in need of protection. This protection is afforded in part through the designation of sites which support significant examples of habitats or populations of species. ("European sites"). Sites designated

for wild birds are termed "Special Protection Areas" (SPAs) and sites designated for natural habitat types or other species are termed "Special Areas of Conservation" (SACs). The complete network of European sites is referred to as "Natura 2000".

In order to ensure the protection of European sites in the context of land use planning and development, Article 6(3) of the Habitats Directive provides for the assessment of the implications of plans and projects for European sites, as follows:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site¹ and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

In *Case C-323/17* [§34], *People Over Wind*, the Court of Justice of the European Union ('the CJEU') referred to the nature of the test to be applied in making a screening determination as follows:

"[...] it is settled case-law that Article 6(3) of the Habitats Directive makes the requirement for an appropriate assessment of the implications of a plan or project conditional on there being a probability or a risk that the plan or project in question will have a significant effect on the site concerned. In the light, in particular, of the precautionary principle, such a risk exists if it cannot be excluded on the basis of objective information that the plan or project will have a significant effect on the site concerned (judgment of 26 May 2011, Commission v Belgium, C-538/09, EU:C:2011:349, paragraph 39 and the case-law cited). The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project (see, to that effect, judgment of 21 July 2016, Orleans and Others, C-387/15 and C-388/15, EU:C:2016:583, paragraph 45 and the case-law cited)."

Article 7 of the Habitats Directive provides that the provisions of, *inter alia*, Article 6(3) are to apply to SPAs under Directive 2009/147/EC (the "Birds Directive").

As stated, the requirements arising out of Article 6(3) of the Habitats Directive are transposed into Irish law by Part XAB of the 2000 Act and by the European Communities (Birds and Natural Habitats) Regulations 2011 as amended² (S.I. No.477 of 2011) (the Habitats Regulations), including Part 5 thereof.

The determination of whether or not a plan or project requires AA is referred to as "Stage 1" or "AA Screening". A "Stage 1" or "AA Screening" is completed to determine whether or not the Works and the environmental surveys, either individually or in combination with other plans or projects, in view of best scientific knowledge, is likely to have a significant effect on areas designated as being of European importance for nature conservation ("European sites"), thereby enabling the Applicant, to fulfil its obligations under Article 6(3) of the Habitats Directive.

As set out above, it is the considered opinion of ROD, as the author of this SISAA Report, that the Works and the environmental surveys, either individually or in

¹ Including, where applicable, 'sites'.

² Including inter alia S.I. 290 of 2013; SI 499 of 2013; SI 355 of 2015; the Planning, Heritage and Broadcasting (Amendment) Act 2021, Chapter 4; SI 293 of 2021.

combination with other plans or projects, is not likely to give rise to impacts which would constitute significant effects on four European sites, namely the South Dublin Bay & River Tolka Estuary SPA, the North Bull Island SPA, the North Dublin Bay SAC and the North-west Irish Sea SPA, in view of their Conservation Objectives, and, therefore, that AA is not required in respect of the Works and the environmental surveys.

Article 6(3) of the Habitats Directive specifies that AA must be undertaken by the "competent national authorities". In Ireland, the "competent authority" is the relevant planning authority for each plan or project, e.g. the local authority or An Bord Pleanála. Consequently, the responsibility for carrying out AA Screening lies solely with the competent authority. In that respect, the AA Screening Report is not in itself an AA Screening Assessment but provides the competent authority with the information it needs in order to carry out its AA Screening.

1.4 Screening Methodology

At this stage of the process, the AA Screening Report assesses the potential impacts from the plan or project on the European sites within the Zone of Influence and evaluates them in view of the sites' Conservation Objectives.

Best practice in undertaking AA Screening involves five steps as follows:

- 1. The first step involves gathering the information and data necessary to carry out a screening assessment. These include, but are not limited to, the details of all phases of the plan or project, environmental data pertaining to the area in which the plan or project is located, e.g. rare or protected habitats and species present or likely to be present, and the details of the European sites within the Zone of Influence.
- 2. The second step involves examining the information gathered in the first step and a scientific analysis of the potential impacts of the project on the receiving environment, particularly the European sites in the Zone of Influence.
- 3. The third step evaluates the impacts analysed in the second step against the Conservation Objectives of the relevant European sites, thereby determining whether or not those impacts constitute "likely significant effects", within the meaning of Article 6(3) of the Habitats Directive.
- 4. The fourth step involves considering the potential for likely significant effects to arise from the combination of the impacts of the plan or project with those of other plans or projects. If it is determined in the third step that Stage 2 (AA) is required, consideration of potential cumulative impacts may be deferred to that stage.
- 5. The last step involves the issuing of a statement of the determination of the AA Screening. Notwithstanding the recommendation made in the AA Screening Report, the responsibility for completing this step lies solely with the competent authority.

The following guidance documents informed the assessment methodology:

- EC (2021) Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Environment Directorate-General of the European Commission.
- EC (2018) Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. European Commission, Brussels.

- DEHLG (2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin.
- NPWS (2010) Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular Letter NPWS 1/10 & PSSP 2/10. Department of the Environment, Heritage and Local Government, Dublin.
- OPR (2021) Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin.

1.5 Ecological Assessment

In order to fully inform this SISAA Report in respect of the Works and environmental surveys, it was necessary to establish the baseline ecological conditions in the receiving environment, particularly with regard to European sites.

1.5.1 Desk Studies

During preparation of the SISAA Report, the statutory consultee, the National Parks & Wildlife Service (NPWS), provided data on designations of sites, habitats, and species (including birds) of conservation interest. This included reports pursuant to Article 17 of the Habitats Directive³ (NPWS, 2013a,b) and the Site Synopses, Natura 2000 Standard Data Forms and Conservation Objectives (including supporting documents) for the relevant European sites.

The desk studies involved thorough reviews of existing information relating to ecology in the vicinity of the Works and the environmental surveys. A number of webbased geographic information systems (GISs) were used to obtain information relating to the natural environment surrounding the Works and the environmental surveys. These included the NPWS *Map Viewer* (NPWS, 2022), which provided information on the locations of protected sites, the National Biodiversity Data Centre's *Biodiversity Maps* (NBDC, 2022), which provided recent and historic records of rare and protected species in the area, and Ordnance Survey Ireland's *GeoHive*, which provided additional information on the wider environment.

1.5.2 Assessment

Once established, the ecological baseline in the receiving environment was used to inform the assessment of the ecological effects likely to arise from the Works and the environmental surveys particularly with regard to European sites. Any assumptions that were made in view of gaps in the ecological data were made in accordance with the Precautionary Principle.

³ Under Article 17, to report to the European Commission every six years on their status and on the implementation of the measures taken under the Directive.

2. DESCRIPTION OF THE WORKS AND THE ENVIRONMENTAL SURVEYS

2.1 Environmental Surveys

2.1.1 Gas Main Survey

The use of acoustic Sub-bottom profiling and a vertical magnetic gradiometer are proposed for the detection of the buried infrastructure. A UniPact, which is a remotely operated unmanned surface vessel (USV)), will be used for both sets of apparatus, and will locate the pipe acoustically. This will be installed with an Innomar Standard Sub-bottom Profiler.

2.1.2 Inspection of Pier Wall

A Norbit Winghead High Frequency Scanning Multibeam Echo Sounder will be used on the USV to provide a detailed topographical survey of the north quay wall and Tom Clarke Bridge.

2.1.3 Additional structural inspection works for widening works

Structural inspection works at Tom Clarke Bridge piers will comprise of a dive survey and a survey of the pier concrete above the water. The dive survey will involve a visual condition survey of the visible sections of piles and underwater ultrasonic testing to determine the thickness of the steel pile wall. The above-water survey of the pier concrete will involve chloride testing (depth of ingress into the concrete cover) and defects mapping of the concrete substructures (including the bascule pier).

2.2 Ground Investigations (the Works)

2.2.1 Overview

The Works involve the gathering, and compilation of ground investigation data to enable the planning, design and construction of the Point Bridge and Tom Clarke Bridge Widening Project. The Works will include rotary core and Geobore S drilling, slit trenching, concrete coring into a cofferdam concrete plug installed during the construction of Tom Clarke Bridge, standpipes/piezometer installations and monitoring, in-situ testing and laboratory testing.

2.2.2 Location

The in-river investigation works will be undertaken within a tidal reach of the River Liffey and in close proximity to both the upstream and downstream sides of the existing Tom Clarke Bridge structure and protective dolphins. The works are also in close proximity to the St Patrick's Rowing club floating pontoon and the high-pressure gas main which passes underneath the Liffey to the west of Tom Clarke bridge. The land-based investigation works are located on the existing North Quay Wall Campshires adjacent to the historic quay wall and the structure supporting the left turn lane from Tom Clarke bridge to North wall quay road.

2.2.3 Outline of the Works

2.2.3.1 General Layout

The scope of the works envisaged under this ground investigation is as follows:-

- a) Geobore S drilling, sampling and *in situ* testing;
- b) Rock coring, proving rock to a specified depth and *in situ* testing;

- c) Slit trenching, sampling and *in situ* testing;
- d) Concrete Coring;
- e) Monitoring of groundwater levels in standpipes and piezometers;
- f) Detailed borehole and coring;
- g) Sampling to IS EN 22475-1 requirements, predominantly providing Category A samples for laboratory testing of strength and stiffness;
- h) Logs as described in IS EN14688-1; IS EN1489-1; and BS5930 and the specification;
- i) The ground investigation should be carried out in accordance with British Standard 10175:2001, Investigation of Potentially Contaminated Sites: Code of Practice and the EPA Landfill Manual: Investigations for landfill.
- Specific trial pits, probes or sediment grab samples to be carried out for the purpose of contamination assessment, waste classification and offshore marine disposal of excavated spoil plus laboratory testing of soil and ground water samples for engineering properties, behaviour and suitability for reuse as engineering fill;
- k) Laboratory testing of rock samples for engineering properties, behaviour and suitability;
- Laboratory testing of soil and ground water samples for environmental contamination, waste classification and offshore marine disposal of excavated spoil;
- Preparation of detailed Main Factual Report as per S1.21.8 and cl 16.8 of the Specification, together with the production of Digital Data to AGS Format as per S1.21.10 and cl. 16.5;
- n) Preparation of an interpretive Ground Investigation Report in accordance with IS EN1997-2, Section 6 as per S1.21.9;
- o) Preparation of a Contamination Assessment Report in accordance with the EPA document '*Environmental Risk Assessment for Unregulated Waste Disposal Sites (2007)*' as per Cl 1.21.9.
- p) Preparation of a Waste Classification Assessment and reporting of acceptability of materials for disposal as inert, non-hazardous or hazardous wastes to landfill facilities in accordance with the Commission Decision of 18 December 2014 and EU Commission Regulation No 1357/2014;
- q) Assessment of river bottom sediment samples for potential offshore marine disposal in compliance with Marine Institute (2006) "*Guidelines for Assessment of Dredge Material for Disposal in Irish Waters*".
- r) Liaison with Dublin City Council and external bodies including landowners, project archaeologist and other appointed third parties working near or over the water during the course of the investigations;
- Liaison with Dublin Port Company and Waterways Ireland in respect of access, safety measures and employee training required for exploratory works within or in the vicinity of navigable waterways;
- t) Liaison and compliance with Health & Safety requirements of PSCS and general contractor.
- u) Provision of temporary traffic management;

The locations of all ground investigations and surveys are shown on the Proposed Ground Investigation Plan, Drawing No: PTCB-ROD-GEN-AE-SK-CS-301051 in Appendix A.

2.2.4 Schedule of Investigations

Tables 2.1, 2.3, 2.3 and 2.4 below detail the Schedule of Investigations. CP = cable percussion; RO = Rotary Open Hole; RC = Rotary Coring with core recovery; PG = Polymer Gel Geobor S rotary coring with plastic liner continuous sampling.

Table 2.1Borehole Schedule

CABLE PERCUSSION BOREHOLES & ROTARY DRILLING / GEOBOR-S POLYMER GEL WIRELINE CORING DRILLHOLES								
	Turne		Schedul	ed Depth (n	n bGL)	Demerke	Coordinates	; (ITM Grid)
Hole ID.	туре	СР	RO	PG	RC	Remarks	Easting	Northing
Land BHs								
BH105	PG & RC	-	-	30	30 to 40 (10m into rock)	PG may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Piezometer to be installed. Contamination Samples.	718009	734392.6
Marine BHs								
BH101	PG & RC	-	-	20	20 to 30 (10m into rock)	PG may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Environmental samples	718005.5	734274.0
BH102	PG & RC	-	-	20	20 to 30 (10m into rock)	PG may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Environmental samples	718004.6	734298.5
BH103	PG & RC	-	-	20	20 to 30 (10m into rock)	PG may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Environmental samples	718006.2	734343.8
BH104	PG & RC	-	-	20	20 to 30 (10m into rock)	PG may continue beyond its scheduled depth up to the level where rock is found. SPTs as per specification. Environmental samples	718011.3	734368.5

The Environmental Scientist shall identify the locations of up to 4 No. window samples and 4 No. sediment grab samples to be carried out for the purpose of contamination assessment at the site. These locations shall be subject to approval of the Investigation Supervisor.

	Contamination Assessment Window Sampling / Grab Sample Locations						
		Schedule		Coordinates (ITM Grid)			
Hole ID.	Туре	(m bGL)	Remarks	Easting	Northing		
WS01	WS	6	Location and sampling to be identified by Environmental Scientist as part of contamination assessment / waste classification	ТВС	TBC		
WS02	WS	6	Location and sampling to be identified by Environmental Scientist as part of contamination assessment / waste classification	ТВС	TBC		
WS03	WS	6	Location and sampling to be identified by Environmental Scientist as part of contamination assessment / waste classification	ТВС	TBC		
WS04	WS	6	Location and sampling to be identified by Environmental Scientist as part of contamination assessment / waste classification	ТВС	TBC		
GS 101	GS	0.5	Location and sampling to be identified by Environmental Scientist as part of contamination assessment / waste classification	ТВС	TBC		
GS 102	GS	0.5	Location and sampling to be identified by Environmental Scientist as part of contamination assessment / waste classification	ТВС	TBC		
GS 103	GS	0.5	Location and sampling to be identified by Environmental Scientist as part of contamination assessment / waste classification	ТВС	TBC		
GS 104	GS	0.5	Location and sampling to be identified by Environmental Scientist as part of contamination assessment / waste classification	ТВС	TBC		

Tahla 2.2	Window Sampling & Grab Sample Schedule for Contamination Assessment
	Mindow Sampling & Grab Sample Schedule for Containination Assessment

Table 2.3Slit Trench Schedule

	Slit Trench Locations							
Hole ID.		Schedule			Coordinates (ITM Grid)			
	. Туре	e Depth (m bGL)	Remarks	Point 1	Point 2	Point 3	Point 4	
ST101	ST	2.5	Pedestrian protection required. Shape and extent as per Ground Investigation Drawing. An archaeologist to be present during excavation	Easting: 718022.9 Northing: 734388.2	Easting: 718003.1 Northing:734389.3	Easting: 718004.0 Northing: 734399.7	Easting: 718014.4 Northing: 734397.3	
Hole ID.	Туре	Schedule Depth (m bGL)	Remarks	Point 1		Poir	nt 2	
ST102	ST	2.5	Traffic Management System required. Pedestrian protection required. Minimum width of 1.5m. An archaeologist to be present during excavation.	Easting: 718027.9	Northing: 734389.0	Easting: 718025.2	Northing: 734387.8	

Table 2.4Concrete Coring Locations

	Concrete Coring Locations					
Hole ID.	Туре	Schedule Thickness (m)			Coordinates (ITM Grid)	
			Remarks	Easting	Northing	
CC101	СС	Full concrete slab thickness	Coring to confirm the thickness of the existing mass concrete slab placed during the temporary works cofferdam construction used to construct the Tom Clarke Bascule Pier.	718011.7	734297.6	

Notes

- 1. CP = Cable Percussion, RO = Rotary Open Hole, RC = Rotary Core, PG = Polymer Gel Geobor-S Rotary, ST = Slit Trench; WS = Window Sampling, GS Grab Sediment Sample; CC = Concrete Coring.
- 2. Coordinates to Irish Transverse Mercator Grid (ITM) and reduced levels to Malin Head Datum required for all BH i.e. CP and RC (incl. RO & PG), TP, ST, PC.
- 3. Undisturbed sampling is required in cohesive soils.
- 4. A minimum total core recovery of 95% and a minimum rock quality designation of 40% is required when coring in rock. Where voids are encountered a standard penetration test shall be undertaken.
- 5. Standard penetration tests are to be carried out as per the Specification.

2.2.5 Timing and Duration

The programming of the works has not yet been determined. The duration of the works will be less than three months.

2.2.6 Potential Impacts on the Natural Environment

The environmental surveys are non-invasive and will utilize small vessels for a few hours per day. The surveys will be undertaken in an area that has frequent vessel traffic, adjacent to an industrial port and therefore has a high level of existing disturbance. The environmental surveys will not lead to any impacts on the natural environment, therefore, these surveys have not been considered further.

The Works will give rise to noise, vibration and artificial lighting. Furthermore, the individual ground investigation points will take place in discreet and small areas for a limited time in an urban area within an industrialised sea port which is already subject to high levels of noise. Any impacts will be very localised and temporary. However, there is potential for mobile marine mammals and semi-aquatic mammals designated in nearby SACs to occur within close proximity to the Works, therefore there is potential for the Works to give rise to hydroacoustic impacts to these species.

Threats to watercourses and associated habitats potentially include the release of sediment laden run-off from the land-based Works and the mobilisation of sediment within the river during the in-stream Works as well as the release of pollutants such as fuels, lubricants and hydraulic fluids, wastewater from on-site toilet and wash facilities. The Works are of a nature and scale that any water quality impacts would be very localized and will dissipate in a very short time. The risk of pollution to the aquatic environment from such sources outlined above, particularly into the River Liffey, arising from the Works is minimal. Owing to the nature, scale and location of the Works, it is not considered to provide for any significant effects on the natural environment during its operation.

3. IDENTIFICATION OF LIKELY SIGNIFICANT EFFECTS

3.1 Establishing the Zone of Influence

Section 3.2.3 of DEHLG (2010) outlines the procedure for selecting the European sites to be considered in AA. It states that European sites potentially affected should be identified and listed, bearing in mind the potential for direct, indirect and incombination effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project. However, it advises that the following sites should generally be included:

- All European sites within or immediately adjacent to the plan or project area;
- All European sites within the Zone of Influence of the plan or project; and,
- In accordance with the Precautionary Principle, all European sites for which there is doubt as to whether or not they might be significantly affected.

The "Zone of Influence" of a project is the geographic extent over which significant ecological effects are likely to occur. In the case of projects, the guidance recognises that the Zone of Influence must be established on a case-by-case basis using the Source-Pathway-Receptor model (OPR, 2021). A project may only to lead to significant effects on the integrity of the European site where all three elements of Source-Pathway-Receptor are linked. In the absence of one element of this model, likely significant effects can be screened out with confidence. The assessment should make reference to the following key variables:

- The nature, size and location of the project;
- The nature of the impacts which may arise from the project;
- The sensitivities of the ecological receptors; and,
- The potential for cumulative in-combination effects.

For example, in the case of a project that could affect a watercourse, it may be necessary to include the entire upstream and/or downstream catchment in order to capture all European sites with water-dependent features of interest.

Having regard to the above key variables, the Zone of Influence was defined a:

- The entire area within 550 m of the Works boundary;
- The tidal reach of the River Dodder; and,
- The transitional waters of Dublin Bay, from the Talbot Memorial Bridge downstream.

The buffer was defined as 550m around the Works as beyond this limit, noise and visual disturbance to birds is unlikely to occur. Noise impacts through water are unlikely to occur beyond 500m as noise would dissipate to background levels at this distance (Berrow, 2021). The tidal reach of the River Dodder is the extent to which hydrological impacts could potentially occur upstream of the Works in the River Dodder. The 'transitional waters of Dublin Bay' are the extent to which hydrological impacts could potentially occur upstream of the Works in the River Liffey and Dublin Bay⁴.

⁴ As defined in Directive 2000/60/EC of 23 October 2000 establishing a framework for Community action in the field of water policy (the "Water Framework Directive"), transitional waters are as bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows.

A geographical representation of the Zone of Influence was produced in ArcGIS 10.5 using the Works boundary and publicly available Ordnance Survey Ireland maps. This was used in combination with NPWS shapefiles to identify the boundaries of European sites in relation to the Zone of Influence.

It was determined that four European sites, namely the South Dublin Bay & River Tolka Estuary SPA, the North Bull Island SPA, the North Dublin Bay SAC and Northwest Irish Sea SPA occur within the Zol for the Works and that the South Dublin Bay SAC occurs adjacent to the Zol. The South Dublin Bay SAC is not considered to be in any way connected to the Works as the Great South Wall forms an effective barrier against any potential effects from the Works of this site. Rockabill to Dalkey Island SAC and the Wicklow Mountains SAC have Qualifying Interest Species which are highly mobile and could occur within the Zol for the Works, therefore these sites have been considered further.

Table 3.1 below lists all of the European sites which are connected to the Works and describes how those sites are connected to the Works. There are no connections between the Works and any European sites other than those listed in Table 3.1. Detailed descriptions of those sites are given in Section 3.2. The locations of these sites in relation to the Works are illustrated in Appendix B of this report.

European site [site code]	Are there potential pathways for impacts from the Works to this site? Explain.
South Dublin Bay and River Tolka Estuary SPA [004024]	The shortest absolute distances from the Works to this site are 1.4km north-east to the Tolka Estuary and 1.5km south-east to Sandymount Strand. These distances are over land and neither of the locations are within the Zol, i.e. there is no hydrological connection along these distances. The shortest distance from the Works to the site via a hydrological connection is 2.4km east (down the River Liffey) to the ESB Dolphin, which is within the Zol. Therefore, the effective distance to the site is 2.4km.
North Bull Island SPA [004006]	The shortest absolute distance from the Works to this site is 3.5km north- east. This distance is over land. The shortest distance from the Works to the site via a hydrological connection is 4.8km north-east (down the River Liffey and across the River Tolka Estuary) which is within the Zol. Therefore, the effective distance to the site is 4.8km.
North Dublin Bay SAC [000206]	The shortest absolute distance from the Works to this site is 3.5km north- east. This distance is over land. The shortest distance from the Works to the site via a hydrological connection is 4.8km north-east (down the River Liffey and across the River Tolka Estuary), which is within the Zol. Therefore, the effective distance to the site is 4.8km.
North-west Irish Sea SPA [004236]	The shortest absolute distance from the Works to this site is 5.1km east. This is also the shortest distance from the Works to the site via a hydrological connection. This distance is over the River Liffey, and is within the Zol.

Table 3.1	European sites located within and connected to the Zone of
	Influence.

European site [site code]	Are there potential pathways for impacts from the Works to this site? Explain.
Rockabill to Dalkey Island SAC [003000]	Yes. The shortest absolute distance from the Works to this site is 9.2km east. This distance is a hydrological connection (down the River Liffey and into Dublin Bay to the east), which is outside of the Zol. However, there is potential for Harbour Porpoise, a Qualifying Interest of this site to occur within the vicinity of the Works. Therefore, there is potential for exsitu LSE's to occur to the Qualifying Interests of this site.
Wicklow Mountains SAC [002122]	Yes. The shortest absolute distance from the Works to this site is 12.8km south. This distance is over land and various waterbodies. The shortest distance from the Works to the site via a hydrological connection is 16km south (which is an upstream hydrological connection, following the Dodder upstream into the Owendoher to its source within the SAC), this is outside of the Zol. Otter which is a Qualifying Interest species of this SAC is known to occur in the vicinity of the Proposed Development. Therefore, there is potential for ex-situ LSE's to occur to the Qualifying Interests of this site.

3.2 Site Descriptions

3.2.1 South Dublin Bay and River Tolka Estuary SPA

The description of the South Dublin Bay and River Tolka Estuary SPA provided here is based on the Site Synopsis (NPWS, 2015ca), Conservation Objectives (NPWS, 2015b) and Natura 2000 Standard Data Form (NPWS, 2017a) for the site, as well as the Conservation Objectives Supporting Document (NPWS, 2014a).

Site Overview

This site comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dún Laoghaire and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included.

The site is of ornithological importance as it supports an internationally important population of Light-bellied Brent Goose and nationally important populations of a further nine wintering species. Furthermore, the site supports a nationally important colony of breeding Common Tern and is an internationally important passage/staging site for three tern species. Notably, four of the species that regularly occur at this site are listed on Annex I of the Birds Directive, namely Bar-tailed Godwit, Common Tern, Arctic Tern and Roseate Tern. Parts of the site are also designated as the Ramsar Convention site "Sandymount Strand/Tolka Estuary".

Qualifying Interests of the Site

- [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] Wetlands

Being an integral part of the internationally important Dublin Bay complex, the site is important for wintering waterfowl – all counts for wintering waterbirds are five-year mean peaks for the period 1995/96 to 1999/2000. Although birds regularly commute between the south bay and the north bay, recent studies have shown that certain populations which occur in the south bay spend most of their time there.

An internationally important population of Light-bellied Brent Goose (368) occurs regularly and newly arrived birds in the autumn feed on the Eelgrass bed at the Merrion Gates. At the time of designation the site supported nationally important numbers of a further nine species: Oystercatcher (1,145), Ringed Plover (161), Grey Plover (45), Knot (548), Sanderling (321), Dunlin (1,923), Bar-tailed Godwit (766), Redshank (260) and Black-headed Gull (3,040). Other species occurring in smaller numbers include Great Crested Grebe (21), Curlew (127) and Turnstone (52). Little Egret, a species which has recently colonised Ireland, also occurs at this site.

South Dublin Bay is a significant site for wintering gulls, with a nationally important population of Black-headed Gull, but also Common Gull (330) and Herring Gull (348). Mediterranean Gull is also recorded from here, occurring through much of the year, but especially in late winter/spring and again in late summer into winter.

Both Common Tern and Arctic Tern breed in Dublin Docks, on a man-made mooring structure known as the ESB Dolphin – this is included within the site. Small numbers of Common Tern and Arctic Tern were recorded nesting on this dolphin in the 1980s. A survey in 1995 recorded nationally important numbers of Common Tern nesting here (52 pairs). The breeding population of Common Tern at this site has increased, with 216 pairs recorded in 2000. This increase was largely due to the ongoing management of the site for breeding terns. More recent data highlights this site as one of the most important Common Tern sites in the country with over 400 pairs recorded here in 2007.

South Dublin Bay is an important staging/passage site for a number of tern species in the autumn (mostly late July to September). The origin of many of the birds is likely to be the Dublin breeding sites (Rockabill and the Dublin Docks) though numbers suggest that the site is also used by birds from other sites, perhaps outside the state. This site is selected for designation for its autumn tern populations: Roseate Tern (2,000 in 1999), Common Tern (5,000 in 1999) and Arctic Tern (20,000 in 1996).

Sensitivities of the Site and its Qualifying Interests

As this site is mostly comprised of coastal wetlands and is located directly adjacent to a major city and port, expansion of the city and port poses the greatest threat to its integrity. Reclamation of land from the sea, estuary or marsh represents a direct loss of key Qualifying Interests of the Site. Roads, urbanisation, human habitation, industrial and commercial activities and discharges present pressures on the site in terms of disturbance and pollution.

Watersports, walkers, horse riding and non-motorised vehicles also cause persistent disturbance to the birds within the site. Angling, particularly bait collection, causes

both disturbance to birds and reduces food availability. The site is also subject to some natural eutrophication pressures.

Conservation Objectives for the Qualifying Interests

All of the Qualifying Interests of the site are currently considered to be in a favourable conservation condition. Therefore, all Qualifying Interests, with the exception of Grey Plover, which is proposed for removal as a Qualifying Interests, have been assigned Conservation Objectives requiring the maintenance of this condition. These Conservation Objectives predominantly focus on the Attributes of "*Population trend*" and "*Distribution*", but those for the three tern species cover a broader range of Attributes, e.g. "*Breeding population abundance: apparently occupied nests (AONs)*" and "*Productivity rate: fledged young per breeding pair*", and that for Wetlands focuses exclusively on the Attribute of "*Habitat area*".

Grey Plover is proposed for removal from the list of Qualifying Interests ⁵ of the site. Therefore, there is currently no site-specific Conservation Objective for Grey Plover in the South Dublin Bay and River Tolka Estuary SPA.

3.2.2 North Bull Island SPA

The description of the North Bull Island SPA provided here is based on the Site Synopsis (NPWS, 2014b), Conservation Objectives (NPWS, 2015c) and Natura 2000 Standard Data Form (NPWS, 2017) for the site, as well as the Conservation Objectives Supporting Document (NPWS, 2014b).

Site Overview

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th Centuries. It is c. 5km long and 1km wide and runs parallel to the coast between Clontarf and Sutton. Part of the interior of the island has been converted to golf courses.

The North Bull Island SPA is an excellent example of an estuarine complex and is one of the top sites in Ireland for wintering waterfowl. It is of international importance on account of both the total number of waterfowl and the individual populations of Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit that use it. Also of significance is the regular presence of several species that are listed on Annex I of the Birds Directive, notably Golden Plover and Bar-tailed Godwit, but also Ruff and Short-eared Owl. North Bull Island is a Ramsar Convention site, and part of the North Bull Island SPA is a Statutory Nature Reserve and a Wildfowl Sanctuary.

Qualifying Interests of the Site

- [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*)

⁵ In NPWS (2015c), Grey Plover is referred to as a "Special Conservation Interest" of the site. This term is sometimes used in place of "Qualifying Interest", but has the same meaning.

- [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

Saltmarsh extends along the length of the landward side of the island and provides the main roost site for wintering birds in Dublin Bay. The island shelters two intertidal lagoons which are divided by a solid causeway. These lagoons provide the main feeding grounds for the wintering waterfowl. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. Green algal mats (*Ulva* spp.) are a feature of the flats during summer. These sediments have a rich macro-invertebrate fauna, with high densities of Lugworm (*Arenicola marina*) and Ragworm (*Hediste diversicolor*).

This site is of international importance for waterfowl on the basis that it regularly supports in excess of 20,000 waterfowl. The site supports internationally important populations of three species, Light-bellied Brent Goose (1,548), Black-tailed Godwit (367) and Bar-tailed Godwit (1,529) - all figures are mean peaks for the five winters between 1995/96 and 1999/2000. The site is one of the most important in the country for Light-bellied Brent Goose. A further 14 species have populations of national importance: Shelduck (1,259), Teal (953), Pintail (233), Shoveler (141), Oystercatcher (1,784), Grey Plover (517), Golden Plover (2,033), Knot (2,837), Sanderling (141), Dunlin (4,146), Curlew (937), Redshank (1,431), Turnstone (157) and Black-headed Gull (2,196). The populations of Pintail and Knot are of particular note as they comprise 14% and 10% respectively of the all-Ireland population totals. Other species that occur regularly in winter include Grey Heron, Little Egret, Cormorant, Wigeon, Goldeneye, Red-breasted Merganser, Ringed Plover and Greenshank. Gulls are a feature of the site during winter and, along with the nationally important population of Black-headed Gull (2,196), other species that occur include Common Gull (332) and Herring Gull (331). While some of the birds also frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes, the majority remain within the site for much of the winter. The wintering bird populations have been monitored more or less continuously since the late 1960s and the site is now surveyed each winter as part of the larger Dublin Bay complex.

The North Bull Island SPA is a regular site for passage waders, especially Ruff, Curlew Sandpiper and Spotted Redshank. These are mostly observed in single figures in autumn but occasionally in spring or winter. The site formerly had an important colony of Little Tern but breeding has not occurred in recent years. Several pairs of Ringed Plover breed, along with Shelduck in some years. Breeding passerines include Skylark, Meadow Pipit, Stonechat and Reed Bunting. The island is a regular wintering site for Short-eared Owl, with up to 5 present in some winters.

Sensitivities of the Site and its Qualifying Interests

The greatest pressures/threats to the integrity of the North Bull SPA come from the bridge/viaduct located within the site (and the potential for other structures to be built

within the site) and from walking, horse riding and non-motorised vehicles within the site. Bait digging/collection, nautical sports and the gold course (all inside the site) and roads, motorways, shipping lanes, continuous urbanisation and industrial or commercial areas (all outside the site) also represent significant pressures/threats to the integrity of this site. Other patterns of habitation within the site represent a lower-level pressure/threat.

Conservation Objectives for the Qualifying Interests

All of the Qualifying Interests of the site are currently considered to be in a favourable conservation condition. Therefore, all Qualifying Interests have been assigned Conservation Objectives requiring maintenance of this condition. These Conservation Objectives focus on the Attributes of "*Population trend*" and "*Distribution*", but that for Wetlands focuses exclusively on the Attribute of "*Habitat area*".

3.2.3 North Dublin Bay SAC

The description of the North Dublin Bay SAC provided here is based on the Site Synopsis (NPWS, 2013a), Conservation Objectives (NPWS, 2013b) and Natura 2000 Standard Data Form (NPWS, 2018b) for the site, as well as the Conservation Objectives Supporting Documents (NPWS, 2013c,d).

Qualifying Interests of the Site

- [1140] Tidal 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)
- [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
- [1395] Petalwort (Petalophyllum ralfsii)

Site Overview

This site covers the inner part of north Dublin Bay, the seaward boundary extending from the Bull Wall lighthouse across to the Martello Tower at Howth Head. The North Bull Island is the focal point of this site.

North Bull Island is a sandy spit which formed after the building of the South Wall and Bull Wall in the 18th and 19th centuries. It now extends for about 5km in length and is up to 1km wide in places. A well-developed and dynamic dune system stretches along the seaward side of the island. Various types of dunes occur, from fixed dune grassland to pioneer communities on foredunes.

About 1km from the tip of the island, a large dune slack with a rich flora occurs, usually referred to as the 'Alder Marsh' because of the presence of Alder trees (*Alnus glutinosa*). The water table is very near the surface and is only slightly brackish.

Saltmarsh extends along the length of the landward side of the island. The edge of the marsh is marked by an eroding edge which varies from 20cm to 60cm high. The marsh can be zoned into different levels according to the vegetation types present.

Towards the tip of the island, the saltmarsh grades naturally into fixed dune vegetation.

The habitat 'annual vegetation of drift lines' is found in places, along the length of Dollymount Strand, with species such as Sea Rocket (*Cakile maritima*), Oraches (*Atriplex* spp.) and Prickly Saltwort (*Salsola kali*).

The island shelters two intertidal lagoons which are divided by a solid causeway. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. The north lagoon has an area known as the "*Salicornia* flat", which is dominated by *Salicornia dolichostachya*, a pioneer glasswort species, and covers about 25 ha. The sediments on the seaward side of North Bull Island are mostly sands. The site extends below the low spring tide mark to include an area of the sublittoral zone.

Three rare plant species which are legally protected under the Flora (Protection) Order, 2015 have been recorded on the North Bull Island. These are Lesser Centaury (*Centaurium pulchellum*), Red Hemp-nettle (*Galeopsis angustifolia*) and Meadow Saxifrage (*Saxifraga granulata*). Two further species listed as threatened in the Red Data Book, Wild Clary/Sage (*Salvia verbenaca*) and Spring Vetch (*Vicia lathyroides*), have also been recorded. A rare liverwort, *Petalophyllum ralfsii*, was first recorded from the North Bull Island in 1874 and has recently been confirmed as still present. This species is of high conservation value as it is listed on Annex II of the E.U. Habitats Directive. The North Bull is the only known extant site for the species in Ireland away from the western seaboard.

North Dublin Bay is of international importance for waterfowl Some of these species frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes (mostly Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Sanderling and Dunlin). The tip of the North Bull Island is a traditional nesting site for Little Tern. A high total of 88 pairs nested in 1987. However, nesting attempts have not been successful since the early 1990s. A well-known population of Irish Hare is resident on the island.

The invertebrates of the North Bull Island have been studied and the island has been shown to contain at least seven species of regional or national importance in Ireland. The main land uses of this site are amenity activities and nature conservation. The North Bull Island is the main recreational beach in Co. Dublin and is used throughout the year. Much of the land surface of the island is taken up by two golf courses. Two separate Statutory Nature Reserves cover much of the island east of the Bull Wall and the surrounding intertidal flats. The site is used regularly for educational purposes. North Bull Island has been designated a Special Protection Area under the E.U. Birds Directive and it is also a statutory Wildfowl Sanctuary, a Ramsar Convention site, a Biogenetic Reserve, a Biosphere Reserve and a Special Area Amenity Order site.

This site is an excellent example of a coastal site with all the main habitats represented. The site holds good examples of nine habitats that are listed on Annex I of the E.U. Habitats Directive; one of these is listed with priority status. Several of the wintering bird species have populations of international importance, while some of the invertebrates are of national importance. The site contains a number of rare and scarce plants including some which are legally protected. Its proximity to the capital city makes North Dublin Bay an excellent site for educational studies and research.

Sensitivities of the Site and its Qualifying Interests

As this site is located directly adjacent to a major city and port, expansion of the city and port poses the greatest threat to its integrity. Reclamation of land from the sea, estuary or marsh represents a direct loss of key Qualifying Interests of the site. Roads, urbanisation, human habitation, industrial and commercial activities and accumulation of organic material present pressures on the site in terms of disturbance and pollution. Walkers, horse riding and non-motorised vehicles also cause persistent disturbance to the birds within the site.

3.2.4 Rockabill to Dalkey Island SAC [003000]

The description of the Rockabill to Dalkey Island SAC provided here is based on the Site Synopsis (NPWS, 2014c) and Conservation Objectives (NPWS, 2013e) for the site, as well as the Conservation Objectives Supporting Documents (NPWS, 2013f).

Qualifying Interests of the Site

Reefs [1170] Harbour Porpoise (*Phocoena phocoena*) [1351]

Site Overview

This site includes a range of dynamic inshore and coastal waters in the western Irish Sea. These include sandy and muddy seabed, reefs, sandbanks and islands. This site extends southwards, in a strip approximately 7 km wide and 40 km in length, from Rockabill, running adjacent to Howth Head, and crosses Dublin Bay to Frazer Bank in south Co. Dublin. The site encompasses Dalkey, Muglins and Rockabill islands.

Reef habitat is uncommon along the eastern seaboard of Ireland due to prevailing geology and hydrographical conditions. Expansive surveys of the Irish coast have indicated that the greatest resource of this habitat within the Irish Sea is found fringing offshore islands which are concentrated along the Dublin coast. A detailed survey of selected suitable islands has shown areas with typical biodiversity for this habitat both intertidally and subtidally. These reefs are subject to strong tidal currents with an abundant supply of suspended matter resulting in good representation of filter feeding fauna such as sponges, anemones and echinoderms.

The area selected for designation represents a key habitat for the Annex II species Harbour Porpoise within the Irish Sea. Population survey data show that porpoise occurrence within the site boundary meets suitable reference values for other designated sites in Ireland. The species occurs year-round within the site and comparatively high group sizes have been recorded. Porpoises with young (i.e. calves) are observed at favourable, typical reference values for the species. Casual and effort-related sighting rates from coastal observation stations are significant for the east coast of Ireland and the latter appear to be relatively stable across all seasons. The selected site contains a wide array of habitats believed to be important for Harbour Porpoise including inshore shallow sand and mudbanks and rocky reefs scoured by strong current flow. The site also supports Common Seal and Grey Seal, for which terrestrial haul-out sites occur in immediate proximity to the site. Bottlenosed Dolphins has also occasionally been recorded in the area. A number of other marine mammals have been recorded in this area including Minke, Fin and Killer Whales and Risso's and Common Dolphins.

The coastal environment of Co. Dublin is a very significant resource to birds with some nationally and internationally important populations. Of particular note in this site are the large number of terns (Arctic, Common and Roseate) known to use Dalkey Island as a staging area (approx. 2,000) after breeding. Other seabirds commonly seen include Kittiwake, Razorbill, Guillemot, Puffin, Fulmar, Shag, Cormorant, Manx Shearwater, Gannet and gulls.

3.2.5 Wicklow Mountains SAC

The description of the Wicklow Mountains SAC provided here is based on the Site Synopsis (NPWS, 2017a) and Conservation Objectives (NPWS, 2017b) for the site, as well as the Conservation Objectives Supporting Documents (NPWS, 2017c).

Qualifying Interests of the Site

Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]

Natural dystrophic lakes and ponds [3160]

Northern Atlantic wet heaths with *Erica tetralix* [4010]

European dry heaths [4030]

Alpine and Boreal heaths [4060]

Calaminarian grasslands of the Violetalia calaminariae [6130]

Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230]

Blanket bogs (* if active bog) [7130]

Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110]

Calcareous rocky slopes with chasmophytic vegetation [8210]

Siliceous rocky slopes with chasmophytic vegetation [8220]

Old sessile oak woods with *llex* and *Blechnum* in the British Isles [91A0]

Lutra lutra (Otter) [1355]

Site Overview

Wicklow Mountains SAC is a complex of upland areas in Counties Wicklow and Dublin, flanked by the Blessington reservoir to the west and Vartry reservoir in the east, Cruagh Mountain in the north and Lybagh Mountain in the south. Most of the site is over 300 m, with much ground over 600 m. The highest peak is 925 m at Lugnaquilla. The Wicklow uplands comprise a core of granites flanked by Ordovician schists, mudstones and volcanics. The form of the Wicklow Glens is due to glacial erosion. The topography is typical of a mountain chain, showing the effects of more than one cycle of erosion. The massive granite has weathered characteristically into broad domes. Most of the western part of the site consists of an elevated moorland, covered by peat. The surrounding schists have assumed more diverse outlines, forming prominent peaks and rocky foothills with deep glens. The dominant topographical features are the products of glaciation. High corrie lakes, deep valleys and moraines are common features of this area. The substrate over much of the area is peat, usually less than 2 m deep. Poor mineral soil covers the slopes, and rock outcrops are frequent. The Wicklow Mountains are drained by several major rivers including the Dargle, Liffey, Dodder, Slaney and Avonmore. The river water in the mountain areas is often peaty, especially during floods.

The vegetation over most of Wicklow Mountains SAC is a mosaic of heath, blanket bog and upland grassland (mostly on peaty soil, though some on mineral soil), stands of dense Bracken, and small woodlands mainly along the rivers. Mountain loughs and corrie lakes are scattered throughout the site.

The two dominant vegetation communities in the area are heath and blanket bog. Heath vegetation, with both wet and dry heath well represented, occurs in association with blanket bog, upland acid grassland and rocky habitats.

Blanket bog is usually dominated by cottongrasses, Heather and bog mosses. On steeper slopes there is some flushing and here Purple Moor-grass, Heath Rush and certain Sphagnum species become more common. The Liffey Head blanket bog is among the best of its kind in eastern Ireland, with deep peat formations and an extensive system of dystrophic pools developed among the hummocks and hollows on the bog surface.

Due to the underlying rock strata, the water of the rivers and streams is acid rather than alkaline. The water is generally oligotrophic and free from enrichment. The lakes within the area range from the high altitude lakes of Lough Firrib and Three Lakes, to the lower pater-noster lakes of Glendalough, Lough Tay and Lough Dan. Spectacular corrie lakes, such as Loughs Bray (Upper and Lower), Ouler, Cleevaun, Arts, Kellys and Nahanagan, exhibit fine sequences of moraine stages.

Alpine vegetation occurs on some of the mountain tops, notably in the Lugnaquilla area, and also on exposed cliffs and scree slopes elsewhere in the site.

Old lead mine workings at Glendasan support an estimated 3.6 hectares of Calaminarian Grassland, with a suite of rare metallophyte (metal-loving) bryophytes, including the moss *Ditrichum plumbicola* and the liverworts *Cephaloziella massalongi* and *C. nicholsonii.*

Small areas of old oakwood (*Blechno-Quercetum petraeae* type) occur on the slopes of Glendalough and Glenmalure, near Lough Tay and Lough Dan, with native Sessile Oak (*Quercus petraea*) trees, many of which are 100-120 years old. On wetter areas, wet broadleaved semi-natural woodlands occur which are dominated by Downy Birch (*Betula pubescens*). Mixed woodland with non-native tree species also occurs.

The site supports a range of rare plant species legally protected under the Flora (Protection) Order, 2015.

Mammals and birds which occur are typical of the uplands. Deer are abundant, mainly hybrids between Red and Sika Deer. Other mammals include Hare, Badger and Otter, the latter being a species listed on Annex II of the E.U. Habitats Directive. Pine Marten has recently been confirmed as occurring within the site. Among the birds, Meadow Pipit, Skylark, Raven and Red Grouse are resident throughout the site. Wheatear, Whinchat and the scarce Ring Ouzel are summer visitors. Wood Warbler and Redstarts are rare breeding species of the woodlands. Dipper and Grey Wagtail are typical riparian species. Merlin and Peregrine, both Annex I species of the E.U. Birds Directive, breed within the site. Recently, Goosander has become established as a breeding species.

Large areas of the site are owned by the National Parks and Wildlife Service (NPWS) and are managed for nature conservation based on traditional land uses of upland areas. The most common land use is traditional sheep grazing, but others include turf cutting, mostly hand-cutting but some machine-cutting also occurs. These activities are largely confined to the Military Road, where there is easy access. Large areas

which had been previously hand-cut and are now abandoned are regenerating. In the last 40 years, forestry has become an important land use in the uplands, and has affected both the wildlife and the hydrology of the area. Amenity use is very high, with Dublin city close to the site. Peat erosion is frequent on the peaks. This may be a natural process, but is likely to be accelerated by activities such as grazing.

Wicklow Mountains is important as a complex, extensive upland site. It shows great diversity from a geomorphological and a topographical point of view. The vegetation provides examples of the typical upland habitats with heath, blanket bog and upland grassland covering large, relatively undisturbed areas. In all, twelve habitats listed on Annex I of the E.U. Habitats Directive are found within the site. Several rare or protected plant and animal species occur, adding further to its value.

3.2.6 North-west Irish Sea SPA

The description of the North-west Irish Sea SPA provided here is based on the Site Synopsis (NPWS, 2023b) and Conservation Objectives (NPWS, 2023a) for the site, as well as the Ministerial Direction (NPWS, 2023c).

On the 13th of July 2023, in accordance with Regulation 16 of the European Communities (Birds and Natural Habitats) Regulations 2011 as amended (S.I. No.477 of 2011), the Minister for Heritage and Electoral Reform published a notice of intention to designate the North-West Irish Sea SPA. Site-specific Conservation Objectives were published on the 19th of September 2023.

In Ireland, the Habitats Regulations set out the process for designating SPAs which includes the proposal of the SPA, a 'candidate SPA' and a public consultation. Following the public consultation, the SPA is formally designated by Statutory Instrument no less than three months and no more than 18 months from the date it was proposed as a SPA. Until the Statutory Instrument is published, the site is not designated. However, this site has been considered in this SISAA Report as the site is likely to become formally designated following submission of this report. Therefore, it allows the Competent Authority to fulfil its obligations under Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive"), including this site which was not designated as an SPA at the time of writing.

Qualifying Interests of the Site

Red-throated Diver (*Gavia stellata*) [A001] Great Northern Diver (*Gavia immer*) [A003] Fulmar (*Fulmarus glacialis*) [A009] Manx Shearwater (*Puffinus puffinus*) [A013] Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Common Scoter (*Melanitta nigra*) [A065] Little Gull (*Larus minutus*) [A177] Black-headed Gull (*Chroicocephalus ridibundus*) [A179]

Common Gull (Larus canus) [A182]

Lesser Black-backed Gull (*Larus fuscus*) [A183] Herring Gull (*Larus argentatus*) [A184] Great Black-backed Gull (*Larus marinus*) [A187] Kittiwake (*Rissa tridactyla*) [A188] Roseate Tern (*Sterna dougallii*) [A192] Common Tern (*Sterna hirundo*) [A193] Arctic Tern (*Sterna paradisaea*) [A194] Little Tern (*Sterna albifrons*) [A195] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200]

Puffin (Fratercula arctica) [A204]

Site Overview

The North-west Irish Sea SPA constitutes an important resource for marine birds. The estuaries and bays that open into it along with connecting coastal stretches of intertidal and shallow subtidal habitats, provide safe feeding and roosting habitats for waterbirds throughout the winter and migration periods. These areas, along with more pelagic marine waters further offshore, provide additional supporting habitats (for foraging and other maintenance behaviours) for those seabirds that breed at colonies on the north-west Irish Sea's islands and coastal headlands. These marine areas are also important for seabirds outside the breeding period.

This SPA extends offshore along the coasts of counties Louth, Meath and Dublin, and is approximately 2,333km² in area. This SPA is ecologically connected to several existing SPAs in this area.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Common Scoter, Red-throated Diver, Great Northern Diver, Fulmar, Manx Shearwater, Shag, Cormorant, Little Gull, Kittiwake, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Great Black-backed Gull, Little Tern, Roseate Tern, Common Tern, Arctic Tern, Puffin, Razorbill and Guillemot.

The breeding seabird species listed for those SPAs, which abut the North-West Irish Sea SPA are: Fulmar (Lambay Island SPA); Cormorant (Skerries Island SPA; Ireland's Eye SPA; Lambay Island SPA); Shag (Skerries Island SPA; Lambay Island SPA); Lesser Black-backed Gull (Lambay Island SPA); Herring Gull (Skerries Island SPA; Ireland's Eye SPA; Lambay Island SPA); Kittiwake (Lambay Island SPA; Ireland's Eye SPA; Howth Head SPA); Roseate Tern (Rockabill SPA); Common Tern (Rockabill SPA;); Arctic Tern (Rockabill SPA); Little Tern (Boyne Estuary SPA); Guillemot (Lambay Island SPA, Ireland's Eye SPA); Razorbill (Lambay Island SPA, Ireland's Eye SPA); and Puffin (Lambay Island SPA). The Common Tern population that is listed for the nearby South Dublin Bay and River Tolka Estuary SPA is also likely to use this SPA as a foraging resource.

Informed by two surveys of the western Irish Sea region in 2016 an estimated 120,232 and 34,626 individual marine birds occurred in this SPA during autumn and winter respectively. Those marine bird species whose estimated abundances

equalled or exceeded 1% of the total estimated size of the winter assemblage are: Red-throated Diver (538), Fulmar (506), Little Gull (391), Kittiwake (944), Blackheaded Gull (508), Common Gull (2,866), Herring Gull (6,893), Great Black-backed Gull (2,096), Razorbill (4,638) and Guillemot (13,914).

The estimated 2016 summer abundance of Manx Shearwater in the North West Irish Sea SPA is 13,010 and is of international importance. The estimated 2016 autumn and winter abundances of Great Northern Diver in the North West Irish Sea SPA is 248 and 230 respectively and are of international importance. The estimated abundances of Common Scoter over parts of this SPA can reach significant numbers (e.g. 14,567 in December 2018) which is also of international importance.

3.3 Evaluation against Conservation Objectives

Tables 3.2 - 3.7 below details the evaluation of the likely effects of the Works in view of the Conservation Objectives of the sites identified in Section 3.1 and described in Section 3.2. As explained in Sections 1.2 and 1.3, SISAA is carried out in view of the Conservation Objectives of the relevant European sites, which are in turn defined by detailed Attributes and corresponding Targets. Therefore, the evaluation of whether or not a likely effect is significant (in view of the Conservation Objective in question) is made with regard to these Attributes and Targets.

Table 3.2	Evaluation of the likely effects of the Works in view of the Conservation Objectives of the South Dublin Bay and River
	Tolka Estuary SPA.

Qualifying Interest	Conservation Objective as per NPWS (2015b)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Light-bellied Brent Goose (<i>Branta bernicla</i> <i>hrota</i>) [A046]	"To maintain the favourable conservation condition of Light-bellied Brent Goose in South Dublin Bay and River Tolka Estuary SPA"	 Light-bellied Brent Goose use the Works area occasionally as confirmed during surveys undertaken by ROD in 2018 and 2019. The Works will not lead to likely significant effects on Light-bellied Brent Goose for the following reasons: The impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to very few individuals. The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching the SPA. Therefore, the Works are not likely to have a significant effect on the South Dublin Bay and River Tolka Estuary SPA, in view of its Conservation Objective for Light-bellied Brent Goose. 	No

Oystercatcher (<i>Haematopus</i> <i>ostralegus</i>) [A130]	"To maintain the favourable conservation condition of Oystercatcher in South Dublin Bay and River Tolka Estuary SPA"	 These species were not recorded during surveys undertaken by ROD in 2018 and 2019 but are likely to utilise the Works area occasionally. The Works will not lead to likely significant effects on any of these Qualifying Interests for the following reasons: The impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to very few 	No	
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	"To maintain the favourable conservation condition of Ringed Plover in South Dublin Bay and River Tolka Estuary SPA"	individuals. The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching the SPA. Therefore, the Works are not likely to have a significant effect on the South Dublin		
Grey Plover (<i>Pluvialis</i> <i>squatarola</i>) [A141]	"Grey Plover is proposed for removal from the list of Special Conservation Interests for South Dublin Bay and River Tolka Estuary SPA. As a result, a site- specific conservation objective has not been set for this species."	Bay and River Tolka Estuary SPA, in view of its Conservation Objective for these Qualifying Interests.	No	
Knot (<i>Calidris</i> <i>canutus</i>) [A143]	"To maintain the favourable conservation condition of Knot in South Dublin Bay and River Tolka Estuary SPA"		No	
Sanderling (<i>Calidris alba</i>) [A144]	"To maintain the favourable conservation condition of Sanderling in South Dublin Bay and River Tolka Estuary SPA"		No	
Dunlin (<i>Calidris alpina alpina</i>) [A149]	"To maintain the favourable conservation condition of Dunlin in South Dublin Bay and River Tolka Estuary SPA"		No	

Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	<i>"To maintain the favourable conservation condition of Bar-tailed Godwit in South Dublin Bay and River Tolka Estuary SPA"</i>		No
Redshank (<i>Tringa totanus</i>) [A162]	<i>"To maintain the favourable conservation condition of Redshank in South Dublin Bay and River Tolka Estuary SPA"</i>		No
Black-headed Gull (<i>Chroicocephalus</i> <i>ridibundus</i>) [A179]	"To maintain the favourable conservation condition of Black-headed Gull in South Dublin Bay and River Tolka Estuary SPA"	 Black-headed Gull was recorded in low numbers during surveys undertaken by ROD in 2018 and 2019. The Works will not lead to likely significant effects on any of these Qualifying Interests for the following reasons: The impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to very few individuals. The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching the SPA. Therefore, the Works are not likely to have a significant effect on the South Dublin Bay and River Tolka Estuary SPA, in view of its Conservation Objective for these Qualifying Interests. 	No

Roseate Tern (<i>Sterna dougallii</i>) [A192]	"To maintain the favourable conservation condition of Roseate Tern in South Dublin Bay and River Tolka Estuary SPA"	 The closest known breeding site for Roseate Tern is at the Electricity Supply Board dolphin on the River Liffey between Poolbeg power station and the Pigeon House (c. 2.4km east of the Works). Roosting is known to occur between Martello towers at Sandymount and Williamstown (c. 2.6.km southeast of the Works). The Works will not lead to any impacts on Roseate Tern for the following reasons: Occurrence of breeding and roosting sites are of sufficient distance from the Works to ensure that these sites will not be disturbed by the Works. Should Roseate Tern occur within the Works area, he impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to very few individuals and will therefore not constitute a likely significant effect on this Qualifying Interest The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching the SPA. Therefore, the Works are not likely to have a significant effect on the South Dublin Bay and River Tolka Estuary SPA, in view of its Conservation Objective for Roseate Tern. 	No
Common Tern (<i>Sterna hirundo</i>) [A193]	"To maintain the favourable conservation condition of Common Tern in South Dublin Bay and River Tolka Estuary SPA"	 Common Tern have been recorded nesting in small numbers in the vicinity of the Grand Canal Sea Lock during surveys undertaken by ROD in 2018 and 2019 next to the Works area. The Works will not lead to any impacts on Common Tern for the following reasons: The impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to very few individuals and will therefore not constitute a likely significant effect on this Qualifying Interest. The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching the SPA. Therefore, the Works is not likely to have a significant effect on the South Dublin Bay and River Tolka Estuary SPA, in view of its Conservation Objective for Common tern. 	No

Arctic Tern (<i>Sterna paradisaea</i>) [A194]	"To maintain the favourable conservation condition of Arctic Tern in South Dublin Bay and River Tolka Estuary SPA"	 The closest known breeding site for Artic Tern is at the Electricity Supply Board dolphin on the River Liffey between Poolbeg power station and the Pigeon House (c. 2.4km east of the Works). Roosting is known to occur between Martello towers at Sandymount and Williamstown (c. 2.6.km southeast of the Works). The Works will not lead to any impacts on Artic Tern for the following reasons: Occurrence of breeding and roosting sites are of sufficient distance from the Works to ensure that these sites will not be disturbed by the Works. Should Artic Tern occur within the Works area, he impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to very few individuals and will therefore not constitute a likely significant effect on this Qualifying Interest. The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching the SPA. Therefore, the Works are not likely to have a significant effect on the South Dublin Bay and River Tolka Estuary SPA, in view of its Conservation Objective for Artic Tern. 	No
Wetlands [A999]	"To maintain the favourable conservation condition of the wetland habitat in South Dublin Bay and River Tolka Estuary SPA as a resource for the regularly occurring migratory waterbirds that utilise it"	The Conservation Objective for Wetlands is defined by a single Attribute, namely "Habitat area", the Target for which is " <i>The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,192 hectares, other than that occurring from natural patterns of variation. See map 3</i> ". As the Works do not provide for any reduction in the permanent area of this habitat within the site, it has no potential to delay or interrupt the achievement of this Conservation Objective.	No

Qualifying Interest	Conservation Objective as per NPWS (2015c)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Light-bellied "To ma Brent Goose (Branta bernicla hrota) [A046] North E	"To maintain the favourable conservation condition of Light-bellied Brent Goose in North Bull Island SPA"	Light-bellied Brent Goose use the Works area occasionally as confirmed during surveys undertaken by ROD in 2018 and 2019. The Works will not lead to likely significant impacts on Light-bellied Brent Goose for the following reasons:	No
		• The impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to very few individuals.	
		• The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching the SPA.	
		Therefore, the Works are not likely to have a significant effect on the North Bull Island SPA, in view of its Conservation Objective for Light-bellied Brent Goose.	
Shelduck (<i>Tadorna tadorna</i>) [A048]	"To maintain the favourable conservation condition of Shelduck in North Bull Island SPA"	These species are likely to utilise the Works area occasionally. The Works will not lead to any impacts on any of these Qualifying Interests for the following reasons:	No
		• The impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to very few	
Teal (<i>Anas</i> <i>crecca</i>) [A052]	"To maintain the favourable conservation condition of Teal in North Bull Island SPA"	 individuals. The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching the SPA. 	No
Pintail (<i>Anas</i> <i>acuta</i>) [A054]	"To maintain the favourable conservation condition of Pintail in North Bull Island SPA"	Therefore, the Works are not likely to have a significant effect on the North Bull Island SPA, in view of its Conservation Objective for these Qualifying Interests.	No
Shoveler (<i>Anas</i> <i>clypeata</i>) [A056]	"To maintain the favourable conservation condition of Shoveler in North Bull Island SPA"		No

Table 3.3 Evaluation of the likely effects of the Works in view of the Conservation Objectives of the North Bull Island SPA

Qualifying Interest	Conservation Objective as per NPWS (2015c)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Oystercatcher (<i>Haematopus</i> ostralegus) [A130]	"To maintain the favourable conservation condition of Oystercatcher in North Bull Island SPA"	[As above]	No
Golden Plover (<i>Pluvialis</i> <i>apricaria</i>) [A140]	<i>"To maintain the favourable conservation condition of Grey Plover in North Bull Island SPA"</i>		No
Grey Plover (<i>Pluvialis</i> <i>squatarola</i>) [A141]	"To maintain the favourable conservation condition of Grey Plover in North Bull Island SPA"		No
Knot (<i>Calidris</i> <i>canutus</i>) [A143]	<i>"To maintain the favourable conservation condition of Knot in North Bull Island SPA"</i>		No
Sanderling (<i>Calidris alba</i>) [A144]	<i>"To maintain the favourable conservation condition of Sanderling in North Bull Island SPA"</i>		No
Dunlin (<i>Calidris alpina alpina</i>) [A149]	<i>"To maintain the favourable conservation condition of Dunlin in North Bull Island SPA"</i>		No
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	"To maintain the favourable conservation condition of Black-tailed Godwit in North Bull Island SPA"		No

Qualifying Interest	Conservation Objective as per NPWS (2015c)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	<i>"To maintain the favourable conservation condition of Bar-tailed Godwit in North Bull Island SPA"</i>		No
Curlew (<i>Numenius arquata</i>) [A160]	<i>"To maintain the favourable conservation condition of Curlew in North Bull Island SPA"</i>		No
Redshank (<i>Tringa totanus</i>) [A162]	<i>"To maintain the favourable conservation condition of Redshank in North Bull Island SPA"</i>		No
Turnstone (Arenaria interpres) [A169]	<i>"To maintain the favourable conservation condition of Turnstone in North Bull Island SPA"</i>		No
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]	<i>"To maintain the favourable conservation condition of Black-headed Gull in North Bull Island SPA"</i>	 Black-headed Gull was recorded in low numbers during surveys undertaken by ROD in 2018 and 2019. The Works will not lead to likely significant effects on any of these Qualifying Interests for the following reasons: The impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to very few individuals. The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching the SPA. Therefore, the Works are not likely to have a significant effect on the North Bull Island SPA, in view of its Conservation Objective for these Qualifying Interests. 	No

Qualifying Interest	Conservation Objective as per NPWS (2015c)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Wetlands [A999]	"To maintain the favourable conservation condition of the wetland habitat in North Bull Island SPA as a resource for the regularly occurring migratory waterbirds that utilise it"	The Conservation Objective for Wetlands is defined by a single Attribute, namely "Habitat area", the Target for which is " <i>The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 1,713 hectares, other than that occurring from natural patterns of variation. See map 3</i> ". As the Works does not provide for any reduction in the permanent area of this habitat within the site, it has no potential to delay or interrupt the achievement of this Conservation Objective.	No
Qualifying Interest	Conservation Objective as per NPWS (2013b)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
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Mudflats and sandflats not covered by seawater at low tide [1140]	"To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in North Dublin Bay SAC"	The River Liffey at the location of the Works corresponds to the Annex I 'Mudflats & Sandflats not covered by seawater at low tide', all of which is outside the Natura network. 'Mudflats and sandflats not covered by seawater at low tide' within the SAC occur <i>c</i> . 4.8km downstream of the Works at North Bull Island. This habitat occurs below the mean high-water mark therefore a hydrological connection exists between this habitat and the Works. The risk of pollution to the aquatic environment, arising from the Works, is minimal and therefore water quality impacts will not significantly affect the biological communities in these habitats downstream. Therefore, the Works will not significantly affect on the North Dublin Bay SAC, in view of its Conservation Objective for these Qualifying Interests.	No
Annual vegetation of drift lines [1210]	"To restore the favourable conservation condition of Annual vegetation of drift lines in North Dublin Bay SAC"	These habitats occur > 4.8 km from the Works at North Bull Island. All of these habitats occur at or below the mean high-water mark therefore a hydrological connection exists between these habitats and the Works. The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance, and certainly before reaching these habitats. Therefore, the Works will not significantly affect on the North Dublin Bay SAC, in view of its Conservation Objective for these Qualifying Interests.	No
Salicornia and other annuals colonising mud and sand [1310]	"To restore the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in North Dublin Bay SAC"		
Atlantic salt meadows (<i>Glauco-</i> <i>Puccinellietalia</i> <i>maritimae</i>) [1330]	"To maintain the favourable conservation condition of Atlantic Salt meadows (Glauco-Puccinellietalia maritimae) in North Dublin Bay SAC"		

Table 3.4 Evaluation of the likely effects of the Works in view of the Conservation Objectives of the North Dublin Bay SAC

Qualifying Interest	Conservation Objective as per NPWS (2013b)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Mediterranean salt meadows (<i>Juncetalia maritime)</i> [1410]	"To maintain the favourable conservation condition of Mediterranean salt meadows (Juncetalia maritime) in North Dublin Bay SAC"		
Embryonic shifting dunes [2110]	"To restore the favourable conservation condition of Embryonic shifting dunes in North Dublin Bay SAC"	All of these habitats are located >4.8 km from the Works on North Bull Island and above the mean high-tide water mark. Therefore, there will be no direct loss, fragmentation or damage to any of these habitats as a result of the Works. As these habitats are located above the mean high-water mark, any water quality impacts which may arise from the Works are extremely unlikely to affect these habitats. Therefore, the Works will not significantly affect on the North Dublin Bay SAC, in view of its Conservation Objective for these Qualifying Interests.	No
Shifting dunes along the shoreline with <i>Ammophila</i> <i>arenaria</i> (white dunes) [2120]	"To restore the favourable conservation condition of Shifting dunes along the shoreline with Ammophila arenaria ('white dunes') in North Dublin Bay SAC"		
Fixed coastal dunes with herbaceous vegetation (grey dune) [2130]	"To restore the favourable conservation condition of fixed coastal dunes with herbaceous vegetation ('grey dunes') in North Dublin Bay SAC"		
Humid dune slacks [2190]	"To restore the favourable conservation condition of Humid dune slacks in North Dublin Bay SAC"		
Petalwort Petalophyllum ralfsii [1395]	<i>"To maintain the favourable conservation condition of Petalwort in North Dublin Bay SAC"</i>	The nearest occurrence of Petalwort is <i>c</i> .7.5km to the north-east of the Works among the fixed dunes on the north end of Bull Island (Campbell et al., 2019). Petalwort is a terrestrial species and thus has no hydrological connection to the Works. Therefore, there is no pathway for impacts between the Works and Petalwort. Therefore, the Works will not significantly affect on the North Dublin Bay SAC, in view of its Conservation Objective for Petalwort.	No

Table 3.5 Evaluation of the likely effects of the Works in view of the Conservation Objectives of the Rockabill to Dalkey Island SAC

Qualifying Interest	Conservation Objective as per NPWS (2013f)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Reefs [1170]	"To maintain the favourable conservation condition of Reefs in the Rockabill to Dalkey Island SAC"	This is a fully marine habitat with intertidal components therefore a hydrological connection exists between this habitat and the Works. The Works provide for potential water quality impacts downstream of the Works. However, due to the considerable distance between the SAC and the Works (9.2km), the assimilative capacity of Dublin Bay and the scale and nature of the Works; there is no potential for water quality impacts from the Works to result in likely significant effects on the on the Rockabill to Dalkey Island SAC, in view of its Conservation Objective for 'Reefs'.	No
Harbour Porpoise (<i>Phocoena</i> <i>phocoena</i>) [1351]	"To maintain the favourable conservation condition of Harbour Porpoise in the Rockabill to Dalkey Island SAC"	This is a fully aquatic mammal therefore a hydrological connection exists between and the Works and this QI species. This species is also known to occur within the waters of Dublin Bay outside of the SAC. The Works provide for potential to cause habitat degradation through changes in water quality as a result of pollution. This could impact the biological communities where this species forages and affect the quality and / or quantity of prey items for this species. However, due to the considerable distance between the SAC and the Proposed Development (9.2km), the assimilative capacity of Dublin Bay, the large aquatic environment available for refuge/forgaing within Dublin Bay and the Irish Sea and the scale and nature of the Proposed Development; there is no potential for water quality impacts from the Proposed Development to result in likely significant effects on the on Harbour Porpoise. Harbour Porpoise have the potential to be impacted by underwater noise during the Works. Noise impacts and construction activities could include disturbance, injury or mortality. A Marine Mammal Risk Assessment was produced for the Dodder Public Transport Opening Bridge Project (Berrow, 2021), this assessed the impacts of noise on marine mammals from the project and the study area included the area which will be impacted by the Works. Conclusions from this report are directly applicable to the Works.	No

Qualifying Interest	Conservation Objective as per NPWS (2013f)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
		due to noise from GI works even if they were within 10m of the rig. The study carried out measurements of underwater noise at Dublin Port. The report found noise from piling reduces to background levels somewhere between 300 and 500m from the source in Alexandra Basin (Dublin Port). The report recorded harbour porpoise at a distance of 4km from the proposed development at the closest point, therefore harbour porpoise would only experience background levels of noise at this distance even if GI was being carried out. In addition, the quay walls of the Bull Wall and Great South Wall act as sound reflectors and noise is effectively contained within the harbour walls and does not influence the wider Dublin bay.	
		Therefore, there is no potential for impacts of disturbance, injury or mortality from the Proposed Development to result in likely significant effects on the Rockabill to Dalkey Island SAC, in view of its Conservation Objective for Harbour Porpoise.	

Qualifying Interest	Conservation Objective as per NPWS (2017a)	Do the Proposed Development provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia</i> <i>uniflorae</i>) [3110]	"To maintain or restore the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) in the Wicklow Mountains SAC"	These QI habitats are terrestrial or aquatic habitats located 13 km upstream of the Proposed Development. There is no effect pathway for impacts to water quality as a result of the Proposed Development to impact upon these QI habitats. Therefore, there is no potential for likely significant effects on the Wicklow Mountains SAC, in view of its Conservation Objective for this QI habitats as a result of the Proposed Development.	No
Natural dystrophic lakes and ponds [3160]	"To maintain or restore the favourable conservation condition of Natural dystrophic lakes and ponds in the Wicklow Mountains SAC"		No
Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010]	"To maintain or restore the favourable conservation condition of Northern Atlantic wet heaths with Erica tetralix in the Wicklow Mountains SAC"		No
European dry heaths [4030]	"To maintain or restore the favourable conservation condition of European dry heaths in the Wicklow Mountains SAC"		No
Alpine and Boreal heaths [4060]	"To maintain or restore the favourable conservation condition of Alpine and Boreal heaths in the Wicklow Mountains SAC"		No

Table 3.6 Evaluation of the likely effects of the Proposed Development in view of the Conservation Objectives of the Wicklow Mountains SAC.

Qualifying Interest	Conservation Objective as per NPWS (2017a)	Do the Proposed Development provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Calaminarian grasslands of the <i>Violetalia calaminaria</i> e [6130]	"To maintain or restore the favourable conservation condition of Calaminarian grasslands of the Violetalia calaminariae in the Wicklow Mountains SAC"		No
Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230]	"To maintain or restore the favourable conservation condition of Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) in the Wicklow Mountains SAC"		No
Blanket bogs (* if active bog) [7130]	"To maintain or restore the favourable conservation condition of Blanket bogs (* if active bog) in the Wicklow Mountains SAC"		No
Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110]	"To maintain or restore the favourable conservation condition of Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) in the Wicklow Mountains SAC"		No

Qualifying Interest	Conservation Objective as per NPWS (2017a)	Do the Proposed Development provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Calcareous rocky slopes with chasmophytic vegetation [8210]	"To maintain or restore the favourable conservation condition of Calcareous rocky slopes with chasmophytic vegetation in the Wicklow Mountains SAC"		No
Siliceous rocky slopes with chasmophytic vegetation [8220]	"To maintain or restore the favourable conservation condition of Siliceous rocky slopes with chasmophytic vegetation in the Wicklow Mountains SAC"		No
Old sessile oak woods with <i>llex</i> and <i>Blechnum</i> in the British Isles [91A0]	"To maintain or restore the favourable conservation condition of Old sessile oak woods with llex and Blechnum in the British Isles in the Wicklow Mountains SAC"		No

Qualifying Interest	Conservation Objective as per NPWS (2017a)	Do the Proposed Development provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Likely Significant Effect
Otter (<i>Lutra lutra</i>) [1355]	"To maintain or restore the favourable conservation condition of Otter in the Wicklow Mountains SAC"	Evidence of Otter was recorded in the vicinity of the Proposed Development (Trituris, 2023, ROD, 2019), in addition, there are NBDC records of Otter using the Liffey Estuary Lower for breeding and foraging. The closest record of an otter sign is located on the St Patricks Rowing Club pontoon, located within the red line boundary of the project (Trituris, 2023). In addition, there is an otter holt located 200m southwest of the Works in a walled private garden near Camden Lock. In Ireland, Otter territories are within the range of 7.5km for females and 18.5km for males (O'Neill et al., 2008). Therefore, the works lie within the possible territories of male otter associated with the Wicklow Mountains SAC, which is located at a hydrological distance of 16km away.	No
		in displacement around the Works area.	
		The Works will not lead to likely significant effects on Otter for the following reasons:	
		• The impacts of visual and noise disturbance arising from the Works for foraging otter, considering the ambient visual and noise disturbance levels in the area, will be minor. The survey methods for the works will be non-invasive, and will utilize small vessels for a few hours per day. Furthermore, otters utilizing this area are habituated to high levels of disturbance due the located in the city center, the active port and existing activities within the river channel.	
		• Otter holts are located at a minimum of 200m from the Works. Guidance (NRA, 2008) recommends a minimum distance of 150m between any works and sensitive otter holts (breeding), to avoid impacts to otter holts. Given the works are >150m from the holts, and that the holt is located within a walled garden and effectively screened from the works, no impacts due to noise or visual disturbance are anticipated.	
		• The Works are of a nature and scale that any water quality impacts will be very localised and will dissipate over a very short distance. Changes in water quality will be minor and not likely to affect Otter prey populations.	
		Therefore, there is no potential for likely significant effects on the Wicklow Mountains SAC, in view of its Conservation Objective for this QI species as a result of the Proposed Development.	

Qualifying Interest	Conservation Objective as per NPWS (2023a)	Do the Works provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	
Red-throated Diver (<i>Gavia</i> <i>stellata</i>) [A001]	"To maintain the favourable conservation condition of red-throated diver at North- west Irish Sea SPA"	For European sites where site-specific Conservation Objectives have been developed, the Conservation Objective for a particular Qualifying Interest depends on the breeding status. The Site Synopsis for the North-West Irish Sea SPA does not explicitly state if it is the wintering or breeding populations (or both) that are the Qualifying Interests.	No
Great Northern Diver (<i>Gavia</i> <i>immer</i>) [A003]	"To maintain the favourable conservation condition of great northern diver at North- west Irish Sea SPA"	Applying the precautionary principal, both the wintering and breeding populations, where relevant, have been considered in this assessment. The Qualifying Interests of this European site can be broken down into groups:	No
Fulmar (<i>Fulmarus glacialis</i>) [A009]	"To restore the favourable conservation condition of fulmar in North-west Irish Sea SPA"	 Species that are present within the SPA year-round, including coastal and inshore areas (Herring Gull, Lesser Black-backed Gull, Great Black-backed Gull, Fulmar, Shag) Species which breed within the SPA but spend the winter months offshore 	No
Manx Shearwater (<i>Puffinus</i> <i>puffinus</i>) [A013]	"To maintain the favourable conservation condition of manx shearwater in North- west Irish Sea SPA"	 (Puffin, Guillemot, Razorbill, Kittiwake) Species which breed within the SPA but migrate from Ireland to the southern hemisphere (Terns, Manx Shearwater) 	No
Shag (<i>Phalacrocorax</i> <i>aristotelis</i>) [A018]	"To restore the favourable conservation condition of shag in North-west Irish Sea SPA"	 Species that winter in the SPA and breed in other areas of Ireland, typically inland lake islands or western Ireland (Common Scoter, Common Gull, Red-throated Diver, Black-headed Gull) Species which migrate to Ireland in the winter but do not breed in Ireland (Great Northern Diver, Little Gull) 	No
Common Scoter (<i>Melanitta nigra</i>) [A065]	"To maintain the favourable conservation condition of common scoter at North-west Irish Sea SPA"	For non-breeding populations, the Attributes of 'Population Trend' and 'Distribution' have been examined. For breeding populations, Attributes and Targets have been applied from the respective Qualifying Interests in other SPAs, as referenced in this table.	No
Kittiwake (<i>Rissa tridactyla</i>) [A188]	"To restore the favourable conservation condition of kittiwake in North-west Irish Sea SPA"	This SPA is in the ZoI and is located 5.1 km from the proposed development in Dublin Bay. Some of the Qualifying Interests occur closer to the proposed development, namely:	No

Table 3.7 Evaluation of the likely effects of the Works in view of the Conservation Objectives of the North-west Irish Sea SPA.

Roseate Tern (<i>Sterna dougallii</i>) [A192]	"To maintain the favourable conservation condition of roseate tern in North-west Irish Sea SPA"	Roseate Tern, Common Tern and Artic Tern breed on the ESB Dolphin in the Liffey Estuary, which is 2.4 km east the proposed development and on the Royal Canal Lock Gates in Dublin City. Small number of Common Tern nest on the Royal Canal Basin locks, and were recorded in low numbers during surveys	No
Little Gull (<i>Larus minutus</i>) [A177]	"To maintain the favourable conservation condition of little gull at North-west Irish	Liffey Estuary and Dublin Bay. Roseate Tern and Arctic Tern were not recorded during surveys undertaken by ROD in 2018 and 2019.	No
	Sea SPA"	Herring Guil, Cormorant, Lesser Black-backed Guil, Great Black-backed Guil, Guillemot, Razorbill, Black-headed Gull regularly occur in the environs of Dublin	
Arctic Tern (<i>Sterna paradisaea</i>) [A194]	"To maintain the favourable conservation condition of Arctic tern in North-west Irish Sea SPA"	City. Guillemot and Razorbill were not recorded during surveys undertaken by ROD in 2018 and 2019. The Gull species are also found in suburban areas, ponds and wetlands, towns, parks, and agricultural areas in the vicinity of the proposed development. Cormorant, Lesser Black-backed Gull, Great Black- backed Gull and Black-headed Gull were recorded in low numbers during surveys undertaken by ROD in 2018 and 2019m while Herring Gull was recorded in high numbers.	No
Little Tern (Sterna albifrons) [A195]	"To maintain the favourable conservation condition of little tern in North-west Irish		No
	Sea SPA"	 Other species such as Puffin and Shag feed in the Liffey Estuary/ Dublin Bay area. Puffin and Shag were not recorded during surveys undertaken by POD in 	
Guillemot (<i>Uria aalge</i>) [A199]	"To maintain the favourable conservation condition of guillemot in North-west Irish	The proposed development does not have the potential to adversely affect these	No
Departill (Alea	Sea SPA	Qualifying Interests, in view of their Conservation Objectives, for the following reasons:	
torda) [A200]	"To maintain the favourable conservation condition of razorbill in North-west Irish Sea SPA"	 The location, nature and scale of the proposed development are such that any water quality impacts would be very localised and will dissipate in a very short time, before, reaching, the SPA, or indeed, Dublin, Bay, in general, This 	No
Puffin (<i>Fratercula arctica</i>) [A204]	"To restore the favourable conservation condition of	assessment has also considered the baseline conditions of the area, being close to a city with a population of over 1m, and an industrial port.	No
	puπin in North-west Irish Sea SPA"	 The impacts of visual and noise disturbance arising from the Works, considering the ambient visual and noise disturbance levels in the area, will be limited to 	
Common Gull (Larus canus)	"To maintain the favourable	very few individuals.	No
[A182]	common gull at North-west Irish Sea SPA"	 Guillemot and Razorbill feed in the River Liffey and Guillemot have been recorded breeding in the Liffey Quay walls. These species are accustomed to noise and visual disturbance in the Liffey and the proposed development will not 	

Black-headed Gull (<i>Chroicocephalus</i> <i>ridibundus</i>) [A179]	<i>"To maintain the favourable conservation condition of black-headed gull at Sea SPA"</i>	 lead to a measurable increase in disturbance in the Liffey, or a measurable decrease in water quality. Gulls are widespread in environs of Dublin City as well as suburban areas, towns, parks and agricultural areas in the vicinity of the proposed development. These species are accustomed to disturbance and the proposed development. 	No
Cormorant (<i>Phalacrocorax</i> <i>carbo</i>) [A017]	"To restore the favourable conservation condition of cormorant in North-west Irish Sea SPA"	 Therefore, the Works are not likely to have a significant effect on the North-west Irish Sea SPA, in view of its Conservation Objective for these Qualifying Interests. 	No
Common Tern (<i>Sterna hirundo</i>) [A193]	"To maintain the favourable conservation condition of common tern in North-west Irish Sea SPA"		No
Lesser Black- backed Gull (<i>Larus fuscus</i>) [A183]	"To maintain favourable conservation condition of lesser black-backed gull in North-west Irish Sea SPA"		No
Great Black- backed Gull (<i>Larus marinus</i>) [A187]	"To maintain the favourable conservation condition of great black-backed gull at North-west Irish Sea SPA"		No
Herring Gull (<i>Larus argentatus</i>) [A184]	"To restore the favourable conservation condition of herring gull in North-west Irish Sea SPA"		No

3.4 Summary of Likely Significant Effects

In Section 3.1, it was established that four European sites, namely the South Dublin Bay and River Tolka Estuary SPA, the North Bull Island SPA, the North Dublin Bay SAC and the Sea SPA occur within the ZoI of the Works, and that mobile species associated with the Rockabill to Dalkey Island SAC and Wicklow Mountains SAC could occur within the ZoI. It was also established that there are no pathways for effects between the Works and any other European sites.

In Section 3.3, it was established, in light of best scientific knowledge, that the Works will not give rise to ecological impacts which would constitute significant effects on the South Dublin Bay and River Tolka Estuary SPA, the North Bull Island SPA, the North Dublin Bay SAC, the North-west Irish Sea SPA, the Rockabill to Dalkey Island SAC or the Wicklow Mountains SAC, in view of the sites' Conservation Objectives. This finding had regard to the nature, size and location of the Works and the sensitivities of the Qualifying Interests of the site concerned.

4. IN-COMBINATION EFFECTS

4.1 Introduction

Article 6(3) of the Habitats Directive requires that AA be carried out in respect of plans and projects that are likely to have significant effects on European sites, "*either individually or in-combination with other plans or projects*". Therefore, regardless of whether or not the likely effects of a plan or project are significant when considered on their own, the significance of the combined effects of the plan or project under assessment and other plans and projects must also be evaluated.

4.2 Methodology

The search area was not defined geographically, but all plans and projects with potential for interactions with the Works were selected for assessment. For the purposes of the assessment, small scale and domestic developments were not considered given the nature of the Works and the fact that these developments would be subject to the stringent planning controls of Dublin City Council.

In assessing in-combination effects, the following were the principal sources consulted:

- DCC (2014). North Lotts and Grand Canal Dock SDZ Planning Scheme
- DCC (2016). Dublin City Development Plan 2016 2022
- DCC (2019). Poolbeg West SDZ Planning Scheme
- NTA (2013). Great Dublin Area Cycle Network Plan
- NTA (2016). Transport Strategy for the Greater Dublin Area 2016 2035
- Dublin Port Company (2012). Dublin Port Masterplan 2012 2040
- DCC Planning Application Map Viewer (2022)
- An Bord Pleanála website search function (2022)
- Department of Housing, Local Government and Heritage EIA Portal (2022)

4.3 Outcome

Table 4.1 below details the assessment of the likelihood of significant effects arising from the Works in-combination with other plans or projects. This assessment was undertaken in view of the Conservation Objectives of the relevant European sites and found that the Works do not have the potential to significantly affect any European site in combination with other plans or projects.

Table 4.1 Assessment of the likelihood of significant effects on European sites arising from the combination of the Works with other plans and projects.

Name of plan or project	Description of plan or project	Likely in- combination effects
Dublin City Development Pan	This plan sets out Dublin City Council's policies and objectives for the proper planning and sustainable development of the County from 2016 to 2022.	These are high-level strategic plans and,
2016 – 2022	A number of specific potential future projects in the vicinity of the Works are mentioned in the Development Plan, including:	therefore, do not of itself provide for any
	Three new bridges proposed as part of the North Lotts and Grand Canal Dock SDZ;	they will not give rise
	The Southern Port Access Route (SPAR);	to likely significant
	Development of the former Pigeon House Hotel and Pigeon House Power Station;	effects in combination
	 The Eastern Bypass: a tunnel under Sandymount Strand and Merrion Strand linking Poolbeg and the Southern Cross / South Eastern Motorway (Plate 17.5); 	with the Works.
	DART Underground;	
	Dublin District Heating.	
	Insofar as possible, these potential projects are considered below.	
Poolbeg West SDZ Planning Scheme (2019)	The Poolbeg West SDZ consists of a 34 ha area between Pigeon House Road, Sean Moore Road and Sean Moore Park on the Poolbeg peninsula, extending in an easterly direction along Sandymount Strand as far as Irishtown Nature Park. The vision for the SDZ set out in the planning scheme document is three-tiered:	
	1. Connect with the physical, environmental, economic and social fabric of the city, the bay and adjoining neighbourhoods.	
	2. Create a new sustainable urban neighbourhood that responds to the area's unique location and enhances the enjoyment of local amenities.	
	3. Protect the special status of Dublin Bay, the intrinsic functions of the port / municipal facilities, and the amenity of existing and future residents.	
	It is intended to develop the SDZ lands with an approx. mix of $80 - 85\%$ residential and $15 - 20\%$ commercial development. The residential potential of the lands is for between 3,000 and 3,500 units, serving an estimated population of c. 8,000 persons. The SDZ will accommodate approx. $80,000 - 100,000 \text{ m}^2$ of commercial floorspace, providing employment for up to 8,000 workers.	
	The SDZ planning scheme includes a concept plan, which outlines how the physical development of the SDZ lands and adjacent areas is envisaged to occur. The area enclosed by the red line indicates the SDZ bounds. The concept plan shows that the northern portion of the SDZ area is earmarked for port /	

Name of plan or project	Description of plan or project	Likely in- combination effects
	industrial use, the south-western portion is earmarked for residential development, and the eastern portion is earmarked for mixed uses, including commercial, creative and industrial activities. To facilitate mobility across the peninsula, and between the peninsula and other locales (including the City Centre), the area is criss-crossed with envisaged 'sustainable transport corridors' and 'local green connections'. Current public transport services to the Poolbeg peninsula are limited, and it is the primary objective of the proposed Dodder Public Transportation Opening Bridge to improve public transport links to the SDZ area. It is also stated that a 'port access route' (will be provided to divert heavy goods vehicles (HGVs) away from more sensitive areas. In relation to this port access route, which will be provided as an interim access route prior to the completion of the proposed South Port Access Route (SPAR), it is later stated that <i>"it is proposed to provide a separate road access to the south port area via a new link located north of the existing Sean Moore Roundabout"</i> (p. 45). It would appear that this Works falls outside the study area. While the SDZ area itself does not fall within the study area of the in-combination assessment, associated transport infrastructure required to support the envisaged to serve the site falls partly within the study area. The Works forms part of this corridor. Other planned developments which would fall within this transport corridor include the proposed South Campshires development, the BusConnects Ringsend Core Bus Corridor (CBC) (Route No. 16) and the Dodder Greenway.	
North Lotts and Grand Canal Dock SDZ Planning Scheme (2014)	The designation of a 66 ha area of the Dublin City Docklands as an SDZ in December 2012 followed the Government's decision in May of that year to disband the Dublin Docklands Development Authority (DDDA). The SDZ designation had the aim of ensuring the continued regeneration of the area, building on the previous significant achievements of the DDDA under the Dublin Docklands Masterplan 2008. Within the total 66 ha SDZ area, there were c. 22 ha remaining with development potential at the date of publication of the ABP-approved planning scheme in 2014 (Plate 17.9). The planning scheme estimated that targeted development of these remaining sites could accommodate an estimated 2,600 residential units and 305,000 m ² of commercial floorspace, providing for a residential population of c. 5,800 and c. 23,000 workers, respectively. The planning scheme also refers to the proposed upgrade of the Ringsend Wastewater Treatment Plant, which falls partially within the study area. It is also stated that <i>"The City Council is currently advancing plans for the construction of two major trunk sewers along Sheriff St. and Castleforbes which, when delivered, will form the basis of the required new foul network for the area" (p. 74). Additionally, <i>"There are proposals to relocate the Grand Canal Surface Water Outfall from the Grand Canal Dock to the River Liffey"</i> (p. 74). Plate 17.11 indicates that there are a number of proposed additions / upgrades to drainage infrastructure in the study area.</i>	

Name of plan or project	Description of plan or project	Likely in- combination effects
Dublin Port Masterplan 2040	The Dublin Port Masterplan was prepared by the Dublin Port Company (DPC) to guide the development of the Port in the period to 2040. It was published in 2012 (as the 'Dublin Port Masterplan 2012 – 2040') and reviewed and revised by DPC in 2017 and 2018, in light of economic and policy developments in the intervening years. Key changes in strategy under the revision of the Masterplan were the decisions not to pursue further eastward infill development in Dublin Bay, and to transfer large volumes of activity to Dublin Inland Port (and away from sensitive receptors). As a result of these changes, it is considered that the envisaged development in the revised Masterplan is more environmentally sustainable than that which was described in the original document. The next revision of the Masterplan is proposed to be carried out no sooner than 2023.	
Transport Strategy for the Greater Dublin Area 2016 – 2035	The National Transport Authority (NTA)'s Transport Strategy for the Greater Dublin Area 2016 – 2035 provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA) – which takes in the Counties of Dublin, Meath, Kildare and Wicklow – to 2035. The Strategy addresses heavy rail, light rail, bus, cycling, walking and road transport infrastructure, as well as freight movement, parking provision, provision of park-and-ride sites, and transport demand management. The location of the Works falls within the Dublin Docklands Corridor of the GDA (Corridor H), and a number of potential future projects identified in the Strategy traverse (or may potentially traverse) the study area of this in-combination assessment. They are as follows: DART Underground Luas Red Line extension to Poolbeg Ringsend – Pearse Street Core Bus Corridor The SPAR: "A road link connecting the southern end of the Dublin Port Tunnel to the South Part area, which will serve the South Port and adjoining development areas" The Strategy has been subject to AA and SEA. The document states that all recommendations arising from these assessments have been integrated into the Strategy. The AA has concluded that the Strategy will not result in significant likely significant effects on the integrity of Natura 2000 sites. The Strategy states that "the Authority will [] ensure that plans, programmes and projects comply with <i>EU Directives - including the Habitats Directive (2001/42/EC), as amended), the Birds Directive (2009/147/EC), the Environmental Impact Assessment Directive (85/337/EEC, as amended) and the Strategic Environmental Assessment Directive (2001/42/EC) – and relevant transposing Regulations" (p. 101).</i>	
Greater Dublin Area Cycle Network Plan	The NTA's Cycle Network Plan for the GDA identifies the proposed future cycle network to serve the area in question, on the basis of an assessment of the state of the cycle network at the time of preparing	

Name of plan or project	Description of plan or project	Likely in- combination effects
(2013)	the plan and the needs of cyclists in the areas in question. A number of potential future primary, secondary and 'feeder' cycle routes, as well as potential future greenways identified in the plan, traverse the study area, as illustrated in Plate 17.15, below. These include the Dodder Greenway, the Royal Canal Greenway and a secondary cycle route traversing the proposed Dodder Public Transportation Opening Bridge, following a similar route to that of the secondary cycle route envisaged to serve the Poolbeg West SDZ	
Alexandra Basin Redevelopment	 In March 2014, DPC submitted an application for planning permission to ABP for the Redevelopment of Alexandra Basin and Berths 52 and 53, together with associated works in Dublin Port (case reference no. PL29N.PA0034; the 'ABR project' hereafter). The ABR project is the most significant infrastructural development planned by the DPC in a century, and comprises the following three major elements: 1. Works at Alexandra Basin West, including construction of new quays and jetties, remediation of contamination on the bed of the basin, capital dredging to deepen the basin and to achieve the specified depths of -10m Chart Datum (CD) at the new berths. 2. Infilling of the Basin at Berths 52 and 53 and construction of a new river berth with a double tiered Ro-Ro ramp. 3. Deepening of the fairway and approach to Dublin Port to increase the ruling depth from -7.8m CD to -10.0m CD. 	In-combination significant effects are not anticipated.
Bitumen Storage Tank Demolition and Installation	On the 4 th of December 2020, Irish Bitumen Storage Limited submitted an application to DCC for planning permission for the removal of 12 no. bitumen and lubricant oil storage tanks with total capacity of 3,105m ³ and a control room building, followed by the installation of a new bitumen storage tank with a volume of approx. 8,275m ³ and a pump platform (ref. 3872/20). A decision has not yet been made in respect of this application. As part of the application, the Applicant submitted a Planning Report (Hugh Munro & Co Ltd, 2020) and AA Screening Report (Neo Environmental, 2019). The latter states that <i>"Although the Application Site has hydrological connectivity with Natura 2000 designated sites, there are a number of measures which have been incorporated into the integral design of the Project, to ensure that potential contaminants within the Application Site are contained in the event of a spillage, including an interceptor Currently the existing tanks are empty, awaiting demolition, which will be carried out in accordance with EEMUA 154 (Demolition of vertical cylindrical steels storage tanks and LPG spheres). Therefore, accidental spillages during the demolition phase from the tanks will not occur" (ibid, p. 5), and has concluded that no Natura 2000 sites will be significantly affected.</i>	In-combination significant effects are not anticipated.

Name of plan or project	Description of plan or project	Likely in- combination effects
	It is considered that, were this project to be granted planning permission and were the proposed works to overlap with the construction phase of the Works, significant cumulative impacts would be unlikely to arise as a result of the Works in combination with these works.	
Capital Dock	On the 7 th of April 2015, KW Real Estate plc on behalf of KW Irish Real Estate Fund VIII submitted an application to DCC for planning permission for a mixed-use development, designed to form part of the 'Britain Quay hub' of the North Lotts and Grand Canal Dock SDZ (ref. DSDZ2546/15): The project in question is referred to as 'Capital Dock' hereafter. On the 19 th of October 2015, DCC granted permission for the Capital Dock project with conditions. Capital Dock has been constructed in the intervening years and is now in the operational phase. Therefore, there will be no overlap between the construction phase of the Works and that of Capital Dock. As part of the planning application for the Capital Dock project, the Applicant submitted an Environmental Impact Statement (EIS) (Stephen Little & Associates, 2015) and AA Screening Report (Scott Cawley, 2015) to DCC. These documents have been reviewed for the purposes of this incombination assessment.	In-combination significant effects are not anticipated.
Castleforbes Bridge	In the North Lotts and Grand Canal Dock SDZ Planning Scheme (2014), the Castleforbes Bridge is identified as a potential future bridge project, linking Britain Quay to Castleforbes Road. In 2018, DCC applied to ABP to amend the planning scheme, such that this bridge would be re-sited to a position to the west of the Tom Clarke Bridge. The Board disallowed this proposed amendment, instead allowing the addition of a new pedestrian and cyclist bridge to the west of the Tom Clarke Bridge, while retaining Castleforbes Bridge at its original intended location in the planning scheme. In reaching its decision, the Board stated that the Castleforbes Bridge (as originally proposed) would satisfy an important desire line for pedestrians and cyclists, and should be retained in the interest of proper planning and sustainable development. To date, DCC has not progressed plans to develop a bridge at this location. Therefore, this potential future project has been excluded from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	In-combination significant effects are not anticipated.
Cruise Vessel Turnaround Facilities	On the 30 th of November 2018, the DPC submitted an application to DCC for temporary planning permission for enhanced facilities for passengers and crews boarding and disembarking cruise ships, including 2 no. marquees and car parking provision (ref. 4507/18). On the 25 th of April 2019, DCC granted permission for the project with conditions. The objective of this temporary project is to provide alternative cruise turnaround facilities, in the event that the buildout of the ABR project (refer to Section 17.5.7) prevents the cruise facilities elsewhere in the port from operating.	In-combination significant effects are not anticipated.

Name of plan or project	Description of plan or project	Likely in- combination effects
	As part of the application, the DPC submitted an AA Screening Report (RPS, 2018a) and Planning Report (RPS, 2018b), which have been reviewed for the purposes of this in-combination assessment. A review of the project drawings shows that only the temporary marquee structure at Ocean Pier (c. 1,750 m ² and 8m in height) falls within the in-combination assessment study area. Accordingly, all other elements of the project have been excluded from consideration.	
	In relation to the temporary marquee, it is stated that the structure <i>"will be erected in position over a two day period held in position for a number of days (depending on the cruise vessel berthing and docking requirements) before being taken down over a two day period"</i> (RPS, 2018a, p. 12).	
	As there are no significant permanent works involved, and the operation of the facility will not constitute a significant change relative to baseline port operations, it is concluded that there is no potential for cumulative impacts to arise as a result of the Works in combination with this temporary port project.	
DART Underground	The Transport Strategy for the GDA (2016 – 2035) and the Dublin City Development Plan (2016 – 2022) identify the need for the DART Underground project. It is understood that a Railway Order has been approved for the project; however, to date, the NTA has not formally proposed this project. This potential future project has been excluded from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	In-combination significant effects are not anticipated.
Demolition of Disused Ro-Ro Ramp and Support Structures	On the 17 th of November 2020, the DPC submitted an application to DCC for planning permission for the demolition and removal of a disused Ro-Ro ramp (Ramp No. 3) and its supporting structures (three gravel filled concrete caissons) for reasons of safety (ref. 3748/20). The proposed works would also include minor repairs to the adjacent quay wall at Berth 45 to repair its original structural capacity, where required. Ancillary works, including site clearance, traffic management, reinstatement of existing surfaces and fencing are also proposed. The application in question remains before DCC for decision. As part of the application, the DPC submitted an NIS and Environmental Report (RPS, 2020a; 2020b) in relation to the proposal, which have been reviewed for the purposes of this in-combination assessment.	In-combination significant effects are not anticipated.
Development of Former Pigeon House Hotel and Power Station	The Dublin City Development Plan (2016 – 2022) envisaged the redevelopment of the former Pigeon House power station and adjacent hotel in Poolbeg. In May 2018, DCC issued a statement seeking expressions of interest from developers in relation to the seven-acre site, in which it was stated that: <i>"The Council is particularly interested in receiving proposals from those involved in creative, technological and green industries. The possible use of the site for a large-scale visitor attraction will also be considered. Finally, consideration should also be given to inclusion of an artistic/community element in any development proposal"</i> (DCC, 2018). According to an article which appeared in the Irish Times on the 7 th of January 2019, five parties subsequently submitted expressions of interest. It would	In-combination significant effects are not anticipated.

Name of plan or project	Description of plan or project	Likely in- combination effects
	not appear that the project has progressed further in the interim. This potential future project has been excluded from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	
Dublin District Heating	The need for a district heating system to serve parts of Dublin City (initially the Docklands area) is set out in a number of policy documents, including the Dublin City Sustainable Energy Action Plan 2010 – 2020 (Codema, 2010), North Lotts and Grand Canal Dock SDZ Planning Scheme (2014), Dublin City Development Plan 2016 – 2022 and Poolbeg West SDZ Planning Scheme (DCC, 2019). It is a requirement of both of the aforementioned SDZ planning schemes that all SDZ developments be district heating enabled. Work has already commenced on provision of elements of the envisaged district heating network, with underground pipes having been laid at a number of locations, including under the Luas Red Line tracks	In-combination significant effects are not anticipated.
	on Mayor Street Upper, under North Wall Avenue and under the River Liffey via the Liffey Service Tunnel. The Dublin District Heating project is ongoing, and it is understood that the Council is exploring future options for its roll out. It is not known whether environmental assessments were completed in relation to the sections of district heating infrastructure already constructed, and it would not appear that there are any formal proposals before DCC / ABP for the construction of further such infrastructure at this time. Associated potential future projects have been excluded from further consideration herein. Should the project be progressed at some future date, associated proposals shall be subject to the proper statutory	
	planning requirements, including EIA and AA, as appropriate.	
Dodder Greenway	The Dodder Greenway is a shared pedestrian / cyclist route loosely following the River Dodder, from Grand Canal Dock in Dublin City Centre to Bohernabreena near Glenasmole, Co. Dublin. The route of the greenway passes through three Local Authority administrative areas: those of DCC, Dún Laoghaire-Rathdown County Council (DLRCC) and South Dublin County Council (SDCC). The DLRCC and SDCC sections of the greenway received joint Part 8 planning approval in 2017.	In-combination significant effects are not anticipated.
Dublin Port Company Headquarters Public Realm Scheme	On the 19 th of August 2015, the DPC submitted an application for planning permission to DCC for public realm landscape works to the Port Centre Precinct including the relocation of an existing car park (ref. 3452/15). Neither EIA not AA were deemed necessary in respect of the project. On the 13 th of October 2015, DCC granted planning permission for the project, which was completed in October 2017.	In-combination significant effects are not anticipated.
	Considering the nature and stage of the project, its location and its remove from the location of the Works, no significant cumulative impacts are anticipated as a result of the Works in combination with this	

Name of plan or project	Description of plan or project	Likely in- combination effects
	project.	
Dublin Port Internal Road Network Improvement	DPC was granted planning permission on the 14 th of September 2016 for works to the Port's private internal road network and works on public roads at East Wall Road, Bond Road and Alfie Byrne Road (ref. 3084/16). The project included the following major elements:	In-combination significant effects are not anticipated.
Scheme	• A greenway (the Tolka Estuary Greenway) running along the northern foreshore of Dublin Port from East Point Business Park to Terminal 5;	
	• Redevelopment of the internal road network, involving approx. 1.5 km of new road construction, existing road and junction reconfiguration, and improved pedestrian and cyclist amenities; and	
	A new pedestrian and cyclist cable-stayed bridge over Promenade Road.	
	An amendment to this planning permission was granted in July 2017 (ref. 2684/17) for a number of minor amendments which were regarded as having no appreciable impacts compared with the originally proposed project (ROD, 2017).	
	As part of the planning application, an EcIA, EIA Screening Report (ROD, 2016) and AA Screening Report were submitted to the planning authority. The EIA Screening Report has been reviewed for the purposes of this in-combination assessment. The report stated the following (pp. $20 - 21$):	
	"The proposed Greenway development will comprise vegetation clearance, temporary screening and phase construction of an approx. 4km long route. Minimal vegetation clearance will be required for the internal road network redevelopment and the pedestrian/cyclist bridge construction. The Project will be confined within the boundary of Dublin Port and therefore the extent of the potential impacts will not be significant Any impact will be local and not significant The probability of any environmental impacts is slight/none. The magnitude of any impact is considered minor and temporary in nature."	
	On the 14 th of December 2020, the DPC announced that <i>"Major works have been completed to upgrade Dublin Port's road network as part of Masterplan 2040 with more to follow by the middle of next year"</i> (DPC, 2020d), indicating that a proportion of the project has already been completed.	
	Considering the minor and localised nature of impacts anticipated, the fact that the majority of the project site extents are situated outside of the study area, and since, according to the DPC, a proportion of the project has already been completed, it is considered highly unlikely that there is the potential for cumulative impacts to arise as a result of the Works in combination with the Dublin Port Road Network Improvement Scheme.	

Name of plan or project	Description of plan or project	Likely in- combination effects
East Coast Trail	The East Coast Trail is one of 13 national cycle routes identified for development in the NTA's GDA Cycle Network Plan. The route extends from Arklow to Drogheda, passing through the Dublin City and incorporating local amenity cycle routes, such as the Sutton to Sandycove ('S2S') project, which is ongoing.	In-combination significant effects are not anticipated.
	It is understood that the S2S project is being delivered in sections, and that a 2km section at Dollymount has already been completed (in 2015/16) under the scope of the Sutton to Sandycove Cycleway & Footway Interim Works (DCC planning ref. 3601/12), with another section potentially delivered under the scope of the Grand Canal Cycle Route & Sutton To Sandycove Docklands Route (DCC planning ref. 4148/09).	
	To the knowledge of the author, there are no current proposals to construct further sections of the East Coast Trail / S2S route in the in-combination assessment study are for the Works. Therefore, this project has been discounted from further consideration herein.	
Eastern Bypass	The present status of the Dublin Eastern Bypass project – which has been considered as a potential future project for many years – is not known. It would appear that efforts to protect the corridor of the envisaged route are ongoing (Irish Times, 2020; NRA, 2011; 2014) but this project is not expected to be progressed in the immediate future.	In-combination significant effects are not anticipated.
	This project is discounted from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	
Forbes Street Bridge	In the North Lotts and Grand Canal Dock SDZ Planning Scheme (2014), the Forbes Street Bridge is identified as a potential future bridge project, linking Forbes Street and Park Lane across the River Liffey. In 2018 and again in 2019, DCC applied to ABP to amend the planning scheme such that the bridge would be re-sited westward to instead link Blood Stoney Road and New Wapping Street (proposed new bridge referred to as 'Blood Stoney Bridge'). In both instances, the proposed amendments were disallowed by the Board.	In-combination significant effects are not anticipated.
	To date, DCC has not progressed plans to develop a bridge at this location. Therefore, this potential future project has been excluded from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	
Grand Canal Storm Water Outfall Extension	The Grand Canal Tunnel, designed and constructed in the early 1970s, runs adjacent to the Grand Canal from Crumlin to Manhole 1 on Mount Street. The tunnel is 3.66m in internal diameter, and has separate foul and storm sewage compartments. At Manhole 1, the foul sewage is conveyed by a 2.6m diameter tunnel to the Pigeon House (main lift) Pumping Station, for transfer to the main treatment works	In-combination significant effects are not anticipated.

Name of plan or project	Description of plan or project	Likely in- combination effects
	at the Ringsend Wastewater Treatment Plant. The storm sewage continues in a 3.2m diameter tunnel to discharge to the Inner Grand Canal Dock, just to the east of the railway line.	
	Previous studies were carried out to identify possible alternative options for re-routing the storm water discharge away from the dock into the River Liffey. The recommended proposal involved intercepting the storm water discharge where it entered the dock, installing a new culvert within the dock itself, north to the River Liffey via Asgard Road, together with the construction of an outfall structure to the River Liffey at Sir John Rogerson's Quay. The Grand Canal Storm Water Outfall Exstension (GCSWOE) through the Grand Canal dock to a new outfall at the River Liffey is being progressed in two phases.	
	Phase 1 of the scheme was completed in 2002 with the construction of a 170m L \times 4m W \times 2.7m H culvert through the Dublin Docklands Development Authority (DDDA) site between Hanover Quay and Sir John Rogerson's Quay, and connecting into the secant piled wall constructed as part of the remediation of the site. Provision was made in the secant wall for the future connection of the Phase 2 culverts on either side.	
	A feasibility study was completed on behalf of Irish Water in 2017, in which four options were assessed for the completion of the Phase 2 extension of the GCSWOE to a new outfall at the River Liffey, and a preferred option was identified and progressed. It is anticipated that the associated outfall works will involve a cofferdam in the River Liffey, piling, and protection of substantial adjacent developments and services.	
	DCC and Irish Water have signed an Agreement and Project Charter to progress the GCSWOE project to planning stage. The planning application for the project is scheduled to be submitted on behalf of DCC in Q4 2021, and it is envisaged that the earliest the project would progress to construction stage would be Q1 2023.	
	Since the application for planning permission for the project has not been submitted, there are no environmental assessment documents available upon which to base an assessment of cumulative impacts in combination with the Works. Therefore, this project is discounted from further consideration herein. As the project is progressed, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	
Liffey Cycle Route	The Liffey Cycle Route is a primary route set out in the GDA Cycle Network Plan (NTA, 2013) and its delivery is a key objective of the NTA and DCC. In 2019, an emerging preferred option was identified for the project (ROD, 2019).	In-combination significant effects are not anticipated.
	It included the following elements:	
	 A one-way segregated cycle track along the north and / or south quays, from the Phoenix Park to the Talbot Memorial Bridge; 	

Name of plan or project	Description of plan or project	Likely in- combination effects
	Boardwalks at various locations;	
	Public realm improvements; and	
	Improvements to existing traffic signal operational infrastructure.	
	The eastern extremity of the emerging route option, at the Talbot Memorial Bridge, overlaps slightly with the in-combination assessment study area for the Works.	
	Since a formal application for planning permission has not yet been submitted in relation to the Liffey Cycle Route, there are no environmental assessment reports on which to base an assessment of the potential for cumulative impacts as a result of this project in combination with the Works. Therefore, this project has been excluded from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	
Liffey – Tolka Project	The DPC Liffey – Tolka project intends to create a new 1.4 km pedestrian and cyclist route linking the River Liffey with the Tolka Estuary via Port lands on the east side of East Wall Road and along Bond Road. The project will feature a pedestrian / cyclist bridge over Promenade Road, as well as tree planting along its length. It is envisaged that this route will tie in with a separate DPC project, the proposed Tolka Estuary Greenway (refer to Section 17.5.19). Both are part of the series of projects which are intended to collectively comprise the 'Dublin Port Distributed Museum'.	In-combination significant effects are not anticipated.
	On the DPC website, it is stated that "Dublin Port Company will apply to Dublin City Council for planning permission for Grafton Architect's design for the Liffey-Tolka Project by April 2021 with a target to commence construction by September 2021 and to complete the works by the third quarter of 2022" (DPC, 2020c).	
	Since, to date, the formal application for planning permission for the project has not been submitted, there are no environmental assessment documents available upon which to base an assessment of cumulative impacts in combination with the Works. Therefore, this project is discounted from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	
Luas Poolbeg	The need for an extension of the existing Luas Red Line to serve the Poolbeg Peninsula is set out the NTA's Transport Strategy for the GDA (2016 – 2035) (NTA, 2016, p. 69):	In-combination significant effects are
	"To serve the future development area of Poolbeg, in addition to Ringsend and Irishtown, it is intended to extend the Luas Red Line south of the River Liffey at, or close to, its eastern end. Potentially, this could be achieved by crossing the Liffey on a new bridge in the vicinity of existing East Link Bridge. Luas services would be extended past the Point, continuing onto Poolbeg development area. This extended	not anticipated.

Name of plan or project	Description of plan or project	Likely in- combination effects
	link will provide a fast and convenient connection from this area into the City Centre and westwards."	
	Since a formal application for planning permission is not expected to be submitted in relation to the Luas Poolbeg project in the short-term, this project has been excluded from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate,	
MP2 Project	On the 11 th of July 2019, the DPC submitted an application to ABP for planning permission for their MP2 Project, a Strategic Infrastructure Development (SID) (ref. PL29N.304888). Together with the ABR Project (refer to Section 17.5.7, above), and a potential future strategic project (not formally proposed), the MP2 Project seeks to deliver the development of Dublin Port as set out in the Dublin Port Masterplan 2040.	In-combination significant effects are not anticipated.
	The project includes the following elements:	
	• A new Ro-Ro jetty (Berth 53) for ferries up to 240m in length on an alignment north of the port's fairway and south and parallel to the boundary of the South Dublin Bay and River Tolka Estuary SPA (004024).	
	A reorientation of Berth 52 permitted under ABP ref. PL29N PA0034.	
	• A lengthening of an existing river berth (50A) to provide the container freight terminal with additional capacity to handle larger container ships. These works will include the infilling of the basin east of Oil Berth 4 on the Eastern Oil Jetty.	
	• The redevelopment and future-proofing of Oil Berth 3 as a future deep water container berth for the container freight terminal.	
	• Consolidation of passenger terminal buildings, demolition of redundant structures and buildings, removal of connecting roads and reorganisation of access roads to increase the area of land for the transit storage of Ro-Ro freight units.	
	• An interpretative heritage installation and public realm area at the easternmost point of the port on the northern side of the Liffey, to commemorate the location of the eastern breakwater pier head, which will be demolished to facilitate the extension of river berth 50A.	
	ABP granted permission for the MP2 Project, with conditions, on the 1 st of July 2020. As part of this application, an EIAR (RPS, 2019a) and NIS were submitted, which have been reviewed for the purposes of this in-combination assessment. Relevant environmental impacts identified are discussed in the following paragraphs.	
	The project entails a lengthy construction phase, with four land (L) phases and seven marine (M) phases, expected to span from Q1 2022 to Q1 2032:	

Name of plan or project	Description of plan or project	Likely in- combination effects
	L1: Northern Access Road	
	M1: Berth 52 / 49	
	M2: Berth 53	
	L2: Eastern Access Road	
	L3: Unified Ferry Terminal Yard	
	M3: Channel Widening Works	
	M4: Jetty Road	
	M5: Oil Berth 3	
	M6: Berth 50A	
	L4: Heritage Installation	
	M7: Dredging of Berth 50A	
	As stated in Chapter 4 – Description of the Project – the construction phase of the Project is anticipated to span from Q1 2022 to Q3 2023, meaning there is likely to be some overlap of the timing of works (and associated environmental impacts).	
	Fisheries	
	Like the ABR project, this MP2 project entails dredging and piling works which have the potential to result in negative impacts on fisheries, including migrating species such as Salmon, Lamprey and River Eel, albeit to a lesser degree, given the limited area to be dredged. A number of mitigating factors are expected to avoid / minimise impacts, including the following:	
	A no-dredge window from March to May to protect Salmon smolts;	
	Limiting the operation of large tubular pile rigs to one or two at a time;	
	• Limiting piling operations to the hours of 08:00 – 20:00 and to six days a week at most; and	
	• No large tubular piling will be allowed to take place within the Liffey Channel from March to May, inclusive, in order to protect outward migration of smolts.	
	The EIAR for the project also incorporates mitigation measures in relation to migratory fish, and no significant cumulative impacts are anticipated in this respect, as a result of the project in combination with the MP2 project.	
	Common Tern	
	Like the ABR project, the MP2 project is not expected to directly or indirectly affect breeding terns in the vicinity. Again, limitation of capital dredging operations to the winter months (October – March) is	

Name of plan or project	Description of plan or project	Likely in- combination effects
	expected to prevent impacts. The EIAR states the following (ibid, pp. 90 – 91):	
	"No direct impacts are predicted on terns as there are none of these species nesting in the immediate area of the MP2 Project There are two potential indirect impacts on these tern colonies – noise disturbance during construction and effects of dredging on foraging areas in the River Liffey It is [] concluded that construction noise from the proposed MP2 Project and associated and heritage installations will not be threatening to these tern species which breed within Dublin Port There is no evidence that the dredging operations affect the small shoaling fish (principally sandeels and sprat) that are their prey."	
Ocean Pier and Alexandra Quay East Works	On the 26 th of August 2019, the DPC submitted an application for Part 8 planning permission for the Ocean Pier and Alexandra Quay East (AQE) project, the objective of which is to redevelop Port lands at the above-stated location to provide enhanced storage yard facilities (ref. 3859/19). DCC granted permission for the project, with conditions, on the 27 th of November 2019.	In-combination significant effects are not anticipated.
	It consists of the following elements:	
	• Permanent demolition of two redundant buildings which do not fit with the future operational requirements of the Port;	
	Demolition of the Dublin Stevedores substation and replacement with a new substation;	
	 Installation of a number of new reefer access gantries; 	
	Installation of a new substation;	
	Extension of an existing rubber tyre gantry stack area;	
	Construction of new retaining wall and security fencing;	
	Provision of new lighting;	
	 Installation of new pavement and associated drainage and services; and 	
	Associated ancillary works.	
	As part of the application, the DPC submitted an AA Screening Report (RPS, 2019b), Preliminary [Bat] Roost Assessment (RPS, 2019c) and method statement (DBFL, 2019) which have been reviewed for the purposes of this in-combination assessment.	
	There are no marine works associated with the project, and no works are proposed within <15m of any of the nearby quaysides. The AA screening exercise concluded that, even in the absence of specific mitigation measures, significant effects on Natura 2000 sites will not occur as a result of the construction or operation of the project. The bat roost assessment carried out concluded that there were no "no	

Name of plan or project	Description of plan or project	Likely in- combination effects
	concerns in view of the proposed demolition works and no specific mitigation measures [] required" (RPS, 2019c, p. 13). Upon consideration of the planning documents, it is considered unlikely that there is the potential for cumulative impacts to arise as a result of the Works in combination with the Ocean Pier and Alexandra Quay East project.	
Ocean Pier Building Demolitions	On the 22 nd of July 2016, the DPC submitted an application to DCC for planning permission for demolition and removal of 5 no. existing buildings (Bord na Móna shed, Rubb shed, Doyle Shipping Group offices, toilet block and substation) at Ocean Pier, in order to create more space for future growth in container stack requirements (ref. 3387/16). Following demolition works, the site will be cleared of residual material and, where excavations have been required, the pavement surface will be reinstated locally to match the existing. On the 21 st of October 2016, DCC granted approval for these works, with conditions. As part of the application, the DPC submitted an AA Screening Report (RPS, 2016a), Planning Report (RPS, 2016b) and bat survey report (Bat Eco Services, 2016), which have been reviewed for the	In-combination significant effects are not anticipated.
	purposes of this in-combination assessment. As all buildings to be removed are set back from the quayside (i.e. no pathway for aquatic impacts), there are no marine works proposed, and no impacts on bats are anticipated, it is considered that there is no potential for cumulative impacts to arise as a result of the Works in combination with the Ocean Pier demolition works, even in the event that these works were to overlap with those proposed for the bridge.	
BusConnects Core Bus Corridor No. 16 Ringsend to City Centre	According to BusConnects Core Bus Corridor No. 16 Ringsend to City Centre PC3 brochure published in November 2020, The Ringsend to City Centre Core Bus Corridor (CBC) commences at Talbot Memorial Bridge. The route encompasses bus lane and cycle infrastructure on both north and south quays connecting the city centre with the Docklands and onto Ringsend and Irishtown. Priority for buses is provided along the entire length of the North Quays, from the Custom House to the 3-Arena at Tom Clarke Bridge, consisting of dedicated bus lanes in each direction. Segregated two-way cycle tracks will be provided in the campshires on both sides of the River Liffey. A cycle route will extend through Ringsend and Irishtown towards the Poolbeg Peninsula.	In-combination significant effects are not anticipated.
	At this location, based on the current design information from the BusConnects project, this project proposes to construct continuous bus lanes in both directions on Custom House Quay and North Wall Quay between the Matt Talbot Bridge and the Tom Clarke Bridge. This will secure improved bus priority along the north quays. The historic Scherzer Bridges constrain the road width at the crossing of the canal entrance to George's Dock and the Royal Canal at Spencer Dock. These structures will be repositioned either side of the new bus and general traffic lane cross-section such that the pedestrian footway and cycle track will pass through them instead. In order to protect bus priority, right-turning	

Name of plan or project	Description of plan or project	Likely in- combination effects
	restrictions are proposed at most junctions along the north quays where alternative access is available from Seville Place and Sheriff Street Upper to the north.	
	The two-way cycle infrastructure on the North Wall Quay will be enhanced and will continue along the full extent of the north quays. A general landscaping arrangement is proposed along the north quays, with two lines of trees along the proposed cycleway. There are width constraints at the two small restaurant buildings at the Excise Walk junction, where a new boardwalk is proposed to overhang the river for a wider pedestrian space on the riverside.	
	There are no environmental assessment documents available upon which to base an assessment of the potential in-combination effects. Therefore, this project has been excluded from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	
Point Junction Improvement	The proposed Point Junction Improvement Scheme is a DCC project which involves the following major elements (as illustrated in Plate 17.25):	In-combination significant effects are
Scheme	• The upgrade of the Point Roundabout junction to a three-arm signalised junction with a left-turn slip lane from North Wall Quay to East Wall Road, including toucan crossings to accommodate pedestrians and cyclists;	not anticipated.
	 Provision of a new access to Dublin Port by providing a fourth arm at the signalised junction of East Wall Road and Sherriff Street Upper, enabling the closure of the existing left in – left out access to Dublin Port along East Wall Road; and 	
	• Widening of East Wall Road to provide an additional northbound lane, along with a cycle track and footpath.	
	In July 2015, Part 8 approval was granted for the project (ref. DSDZ3244/15), but an amendment is now being made to the proposal and, accordingly, a new Part 8 approval will be sought by DCC. To the knowledge of the author, the amended project is at preliminary design stage. Since an application for planning permission for the project has not been submitted to date, there are no environmental assessment documents available upon which to base an assessment of cumulative impacts in combination with the Works. Therefore, this project is discounted from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	
Redevelopment of Camden Lock	On the 23 rd of November 2020, Waterways Ireland submitted an application to DCC for planning permission for the redevelopment of Camden Lock at Grand Canal Dock (ref. DSDZ3781/20). The project would include the following elements a short distance upstream of the location of the Works:	In-combination significant effects are not anticipated.

Name of plan or project	Description of plan or project	Likely in- combination effects
	Removal of existing steel stop logs, tilting weir and footbridge;	
	Restoration of the existing lock chamber and gates;	
	Addition of a new pedestrian walkway over the gates; and	
	Addition of new hydraulic rams to allow for automation of the gates.	
	As part of the application, Waterways Ireland have submitted an EcIA (McCarthy Keville O'Sullivan, 2020a) and NIS (McCarthy Keville O'Sullivan, 2020b), which have been reviewed for the purposes of this in-combination assessment.	
Ringsend Wastewater Treatment Plant Upgrade	Irish Water was granted planning permission by ABP for an SID to further progress the upgrade of the Ringsend Wastewater Treatment Plant (WWTP) on the 24 th of April 2019 (ref. PL29S.301798), following on from an earlier approval in 2012. The permission provides for works required to facilitate the use of Aerobic Granular Sludge (AGS) technology, to omit the previously permitted long sea outfall tunnel and to upgrade the sludge treatment facilities at Ringsend, and to provide for a Regional Biosolids Storage Facility (RBSF) in Newtown, Dublin 11.	In-combination significant effects are not anticipated.
Sea Pool Project	DCC has completed a preliminary feasibility study in relation to a potential open-air, outdoor swimming pool facility to be situated in a floating pontoon on the River Liffey in the Docklands area, on Custom House Quay. Subsequently, preliminary EIA and AA screening exercises were carried out. It was concluded that the project description has not been developed to a level of detail which allows for conclusive screening determinations to be drawn. However, the reports have noted that, subject to appropriate design approach and construction methodology, such a development could be carried out without being likely to give rise to significant environmental impacts or adverse impacts on Natura 2000 sites. Since an application for planning permission has not yet been submitted in relation to the Sea Pool project, it has been excluded from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	In-combination significant effects are not anticipated.
South Campshires	 The DCC South Campshires project involves the enhancement of the public realm facilities on the campshires of Sir John Rogerson's Quay, on the south quays of Dublin City, as well as the construction of flood defence measures. The primary objective of the project is to deliver a coherent, high quality, integrated public realm along the South Campshires. The proposal includes the following elements: A 125 m boardwalk attached to the quay wall; Repaying of areas of the campshires with grapite paying: 	In-combination significant effects are not anticipated.

Name of plan or project	Description of plan or project	Likely in- combination effects
	A new two-way cycle track of 3.5 m width for a distance of 460 m;	
	• A 1.2 m high flood wall with approx. 10 removable flood gates, extending from Samuel Beckett Bridge at the western end of the site to the eastern end of Sir John Rogerson's Quay (i.e. spanning the length of the site of the Project); and	
	• Planters (with landscaping), outdoor exercise equipment, kiosks and outdoor furniture (e.g. benches).	
Southern Port Access Route	The need for a Southern Port Access Route (SPAR) linking the Dublin Port Tunnel with the south (i.e. Ringsend / Poolbeg) side of the Port, to meet the needs of anticipated growth in Port capacity and minimise associated impacts on the local public road network, is identified in the Dublin Port Masterplan 2040, the NTA's Transport Strategy for the GDA (2016 – 2035), and the National Development Plan (2018 – 2027).	In-combination significant effects are not anticipated.
	The project is at early feasibility stage and a planning application is not expected to be submitted for same in the short-term. There are no environmental assessment documents available upon which to base an assessment of the potential for cumulative impacts. Therefore, this project has been excluded from further consideration herein. Should the project be progressed at some future date, it shall be subject to the proper statutory planning requirements, including EIA and AA, as appropriate.	
Upgrade Works at Entrance to DFT and	On the 20 th of June 2018, the DPC submitted an application to DCC for upgrade works at the entrance to DFT and Port Operations Centre (ref. 3314/18). The project consists of the following elements:	In-combination significant effects are
Port Operations Centre	• Re-alignment and modification of traffic lanes along Breakwater Road South and Breakwater Road North;	not anticipated.
	Modification of Alexandra Road and Tolka Quay Road junctions;	
	• Provision of pedestrian crossings, signage, traffic lights, Optical Character Recognition system, DFT check points, road markings, flexible bollards, and barriers;	
	Relocation of a gate;	
	Removal of an existing traffic island;	
	Provision of security fencing along the western boundary of the DFT entrance; and	
	Associated ancillary site works.	
	On the 18 th of September 2018, DCC granted permission for these works.	
	As part of the application, the DPC submitted an AA Screening Report (RPS, 2018c) and Planning Report (RPS, 2018d) which have been reviewed for the purposes of this in-combination assessment. The former states that <i>"there will be no emissions to the marine environmental as a result of the Project"</i>	

Name of plan or project	Description of plan or project	Likely in- combination effects
	and confirms that there will be no in-stream works.	
	Considering the nature of the works involved, it is considered that there is no potential for cumulative impacts to arise as a result of the Works in combination with these road upgrade works.	
Whitewater Rafting Project	On the 22 nd of August 2019, DCC submitted an application for Part 8 planning permission for the construction of a white water rafting recreational facility at George's Dock and Custom House Quay (ref. 3833/19). The proposed project would include the following elements:	In-combination significant effects are not anticipated.
	Demolition of the former Dublin Docklands Development Authority office building;	
	• Provision of an outdoor, open-air white water rafting facility utilising the existing George's Dock basin, including a central flat water training facility with water polo amenity, white water slalom course, kayak / raft conveyor and water rescue training centre;	
	• Construction of new quayside buildings with a combined floor area of 764 m ² and maximum height of 5.5 m; the east building incorporating land-based elements associated with the white water rafting facility, including changing room, reception, storage, <i>etc.</i> ; and the west building comprising replacement office space for the Dublin City Docklands Office;	
	• Provision of ancillary facilities including pumping station, water treatment plant, mechanical control centre and electrical substations;	
	Enhancement of existing public lighting; and	
	Provision of ancillary, landscaped, public realm areas.	
	As part of the application, an EIA Screening Report (Cunnane Stratton Reynolds, 2019) and AA Screening Report (Altemar Marine & Environmental Consultancy, 2019) were submitted in relation to the proposal. These have been reviewed for the purposes of this in-combination assessment.	
	It is concluded that it is highly unlikely that cumulative impacts would arise as a result of the Works in combination with the Whitewater Rafting project. Note that a decision has not yet been made in relation to the planning application for the Whitewater Rafting project, and it is not known whether it will ultimately proceed.	

5. CONCLUSION

In accordance with Article 6(3) of the Habitats Directive, the relevant case law, established best practice and the Precautionary Principle, this SISAA Report has examined the details of "the Works" (Ground Investigations) and environmental surveys and the relevant European sites and has concluded, on the basis of objective information, that the Works, either individually or in combination with other plans or projects, in view of best scientific knowledge, is not likely to give rise to impacts which would constitute significant effects in view of the Conservation Objectives of the South Dublin Bay and River Tolka Estuary SPA, the North Bull Island SPA, the North Dublin Bay SAC, the Rockabill to Dalkey Island SAC, the Wicklow Mountains SAC, the North-west Irish Sea SPA or any other European site.

In light of this conclusion, it is the considered opinion of ROD, as the author of this SISAA Report, that Dublin City Council, as the Competent Authority, may find in completing its AA Screening in respect of the Works that the Works, either individually or in combination with other plans and projects, are not likely to have a significant effect on the South Dublin Bay and River Tolka Estuary SPA, the North Bull Island SPA, the North Dublin Bay SAC the Rockabill to Dalkey Island SAC, the Wicklow Mountains SAC, the North-west Irish Sea SPA or any other European site, in view of best scientific knowledge and the Conservation Objectives of the site concerned. Therefore, it is the recommendation of the author of this SISAA Report that the Competent Authority may determine that AA is not required in respect of the Works.

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APPENDIX A

GROUND INVESTIGATION LOCATIONS



Note: Location of window samples, sediment grab samples and any other sampling required to inform the Contamination Assessment Report are to be determined by the Contractor's Environmental Scientist



Survey Ireland Licence No EN 0006520 Survey Ireland, All Charles And All Control Country Council. Republic of Ireland RGB & CIR – O Bluesky International Ltd. Thursday, 26 May 2022 10:51:41J:2021/21124/21124/02_WIP/08 MODELS/01 CAD/01 DWG/01 STG 1 - PRELIMINARY/PTCB-ROD-GEN-AE-SK-CS-301051 (GI).DWG mer 2015/17/COMA/WaterfordCity&CountryCouncil.

EXISTING BOREHOLE LOCATIONS (TOM CLARKE BRIDGE)

EXISTING BOREHOLE LOCATIONS (GSI)

⊕^{BH 1XX}

ACC 1XX

ST 1XX

PROPOSED GI BOREHOLE LOCATIONS FOR POINT FOOTBRIDGE STRUCTURE

PROPOSED CONCRETE CORING LOCATION FOR EXISTING COFFERDAM MASS CONCRETE SLAB

PROPOSED SLIT TRENCH -INDICATIVE LOCATION FOR POINT FOOTBRIDGE STRUCTURE BH XX

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R2814/BXX

	Project Stage	PRELIMINARY DESIGN			
DUSE DAD RD } 1 294 0800	Project Title	POINT PEDESTRIAN & CYCLING BRIDGE AND TOM CLARKE BRIDGE WIDENING			
	Drawing Title	PROPOSED GROUND INVESTIGATION			
	Drawing Number	Project Originator Volume Location Type Role Number PTCB - ROD - GEN - AE - SK - CS - 301051			
Fender	Scale (A1)	AS SHOWN	Date: April 2022	Job No: 21.124	Rev: P02
DO NOT SCALE USE FIGURED DIMENSIONS ONLY					

APPENDIX B

ZONE OF INFLUENCE

