



REPORT TO INFORM SCREENING FOR APPROPRIATE ASSESSMENT

Greater Dublin Drainage Benthic Survey

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Sediment types near the proposed outfall pipeline route and diffuser location.

1 INTRODUCTION

1.1 Scope of Report

RPS was appointed by Irish Water to undertake a report to inform Stage 1 Screening for Appropriate Assessment (AA) in support of a Foreshore Licence application for benthic sampling as part of the Greater Dublin Drainage Project. This Screening for AA relates solely to the collection of the benthic samples, which will provide up-to-date data that is required to characterise the existing benthic environment in the immediate vicinity of the proposed outfall pipeline (**Figure 1.1**).

1.2 Project Description

1.2.1 Background and Need for the Proposed Works

Irish Water previously commissioned benthic survey assessments to inform the Environmental Impact Assessment Report (EIAR) for the Greater Dublin Drainage Project. Benthic survey assessments were carried out, *inter alia*, around the outfall pipeline proposed as part of the Project and aimed to identify and describe the benthic ecological environment, including sub-tidal habitats, macro-invertebrate communities, sediment types and water quality in the vicinity of the planned construction operations.

The benthic surveys were undertaken over four survey periods as follows:

- Broad survey assessment of benthic conditions between Dublin Bay and Skerries in August 2012 (29 sampling stations);
- Repeat of the August 2012 survey in December 2012 (29 sampling stations);
- Assessment of eight sampling stations focused along the proposed outfall pipeline in July 2013;
- A repeat of the 2013 survey over the same eight sampling stations in August 2017.

These studies were undertaken to inform the EIAR for the Greater Dublin Drainage Project. The benthic surveys undertaken included an assessment of the macro-invertebrate communities and habitat types at all selected locations, along with water quality profiling and sampling. Physicochemical parameters of the shallow marine sediments were recorded during each of these surveys using grab sampling (Jacobs, 2018a).

In order to ensure that the up-to-date baseline information for the benthic environment is maintained, Irish Water are proposing a repeat of the surveys undertaken in 2017 at the abovementioned eight sampling stations along the proposed outfall pipeline.

1.2.2 Overview of the Proposed Works

The proposed works will comprise a benthic survey, undertaken at eight sampling locations along the proposed outfall pipeline. The objective of the survey is to collect up to date baseline data in the vicinity of the proposed outfall pipeline and outfall. All proposed sampling locations are located within 12 nautical miles of the coast. This section describes the surveys to be undertaken.

The sampling locations are listed in **Table 1.1** and illustrated in **Figure 1.1**. The survey will comprise benthic grab sampling, water quality sampling and drop-down video (DDV) transects as detailed in **Section 1.2.2**.

Benthic sampling will be undertaken at all eight sampling locations. Benthic samples will be acquired using a day grab sampler with a sampling area of 0.1m². Three replicate benthic samples will be obtained at each sampling locations. The total surface area (for all sampling locations combined) that will be the subject of grab sampling with therefore be approximately 2.4 m².

Two benthic samples from each sampling location will be processed for macro-invertebrate benthos larger than 500 µm. All samples will be processed on-board using a Wilson autosiever and the recovered residues fixed and stained using a 10% formal saline solution and Rose Bengal dye (and later transferred to 70% alcohol at a laboratory during taxonomic analysis). Samples will be sorted under a microscope and identified to species level, where possible.

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The third benthic sample will be used for:

- sedimentological analyses (granulometry and chemical determination) - Samples will be acquired in the field directly from the undisturbed surface of the grab sampler and the top 5 cm will be assessed for full particle size distribution; and
- contamination – samples will be analysed for total hydrocarbons, heavy and trace metals, volatile organic compounds, organic carbon, polychlorinated biphenyls and organo tins.

Water sampling and profiling will take place at one location (Station ES7 – see **Figure 1.1**). Water profiling will involve the use of a probe that will allow the conductivity, temperature, depth, pH, dissolved oxygen and turbidity at that station to be recorded. A Niskin bottle (or similar) will be used to obtain a sufficient sample of water at the surface (< 1m depth) and a second sample just above the seabed (~1m) for subsequent chemical analysis.

Drop down video transects will take place at all eight locations in close proximity to the grab sampling stations, prior to grab sampling.

Sampling will likely be carried out over a two-day period during daylight hours using an appropriately licenced and crewed inshore survey vessel. Although the vessel to be used is yet to be determined, it is highly likely that that a local vessel (approximately 12 m in length) will be used such as those used regularly for deep sea fishing, wildlife surveys or passenger carrying. Such vessels are used in the area on a day-to-day basis and are familiar with the survey area. The contracted vessel will adhere to mandatory water quality environmental control measures for vessels (including shipboard oil emergency plans and prevention of pollution) under the requirements of the MARPOL Convention and the Sea Pollution Act, 1991 (as amended). MARPOL (The International Convention for the Prevention of Pollution from Ships) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 enabled Ireland to ratify MARPOL.

Table 1.1 Proposed sampling locations

Expected Sampling Location ID	Location		Depth (m)	Sample		
	Easting	Northing		Grab	DDV	Water
ES4	326134	242237	2	✓	✓	
ES5	326979	242226	5	✓	✓	
ES6	328489	242214	10	✓	✓	
ES7	330095	242257	20	✓	✓	✓
ES8	327355	241722	5	✓	✓	
ES9	327366	242722	5	✓	✓	
ES10	329337	241694	10	✓	✓	
ES11	329351	242694	10	✓	✓	



- ### Legend
- Proposed Outfall Pipeline
 - Proposed Outfall Diffuser Location
 - Grab Sampling Stations
 - DDV Sampling Stations
 - Water Sampling Stations



Client
Irish Water

Greater Dublin Drainage Benthic Survey

Title
**Figure 1.1
Location of the proposed
benthic, water and
DDV samples**

RPS West Pier
Business Campus, T +353 (0) 1 4882900
Dun Laoghaire, E Ireland@rpsgroup.com
Co Dublin, Ireland. W rpsgroup.com/ireland

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1.3 Legislative Context

1.3.1 European sites

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as “The Habitats Directive”, provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of a European Union-wide network of sites known as Natura 2000 (hereafter referred to as ‘European sites’).

The Natura 2000 network is defined under the Habitats Directive (Article 3) and the Birds Directive 2009/147/EC (Article 4) as a coherent European ecological network of Special Areas of Conservation (SAC) and Special Protection Areas (SPA). SACs are composed of sites hosting the Qualifying Interest (QI) habitat types listed in Annex I and/or species listed in Annex II (under Article 3 Habitats Directive). SPAs are composed of sites supporting Special Conservation Interests (SCI) comprising Annex I bird species, regularly occurring migratory species and the supporting wetland habitats (under Article 4 Birds Directive). The purpose of the network is to enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range.

Each European site has assigned Conservation Objectives (CO) and a list of QIs and/or SCI. The CO concept appears in the eighth recital of Directive 92/43/EEC which reads: “*whereas it is appropriate, in each area designated, to implement the necessary measures having regard to the conservation objectives pursued*”. Article 1 then explains that “*conservation means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status*”.

NPWS publish COs for European sites on their website. NPWS advise in the general introductory notes of their site-specific CO series publications, that an appropriate assessment based on their “*published conservation objectives will remain valid even if the conservation objective targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out*”. NPWS advise that to assist in that regard, it is essential that the date and version are included when objectives are cited.

1.3.2 Appropriate Assessment

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to have a significant effect on or to adversely affect the integrity of European sites (Annex 1.1). Article 6(3) establishes the requirement for AA:

“Any plan or project not directly connected with or necessary to the management of the [European] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In light of the conclusions of the assessment of the implications for the site 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.”

Article 6(4) states:

“If, in spite of a negative assessment of the implications for the [European] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.”

The Habitats Directive has been transposed into Irish law by Part XAB of the Planning and Development Act, 2000, as amended and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011) as amended. In Ireland, these SACs and SPAs are included within the meaning of ‘European site’ as per section 177U of the Planning and Development Act, 2000 as amended and Part 1(2) of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended.

1.3.3 Role of Competent Authority

In accordance with Foreshore Acts 1933, as amended, the Screening for AA of an application for consent shall be carried out by the competent authority, the Foreshore Unit of the Department of Housing, Local Government and Housing (DHLGH), to assess in view of best scientific knowledge, whether the proposed works, individually or in combination with other plans and projects, is likely to have a significant effect on European sites. This report provides the necessary information to the competent authority in making their determination on the Screening for AA.

2 METHODOLOGY

2.1 Desktop Study

A desk study was carried out to identify all relevant European sites, and their associated QI, in proximity to the proposed works, by reviewing available literature, mapping published by NPWS and previous survey results. Results were supplemented by information provided within relevant Article 17 Reports (NPWS, 2019).

2.2 Appropriate Assessment Guidance

This report has been prepared in accordance with EU and national guidance in relation to Member States' fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in relation to this AA Screening has had regard to the relevant legislation, guidance and caselaw.

2.3 Stages of Appropriate Assessment

Stage 1: Screening / Test of Significance

This process identifies whether the proposed works are directly connected to or necessary for the management of a European site(s) and identifies whether the development is likely to have significant impacts upon a European site(s) either alone or in combination with other projects or plans.

The output from this stage is a determination for each European site(s) of not significant, significant, potentially significant, or uncertain effects. The latter three determinations will cause that site to be brought forward to Stage 2.

Stage 2: Appropriate Assessment

This stage considers the impact of the proposed works on the integrity of a European site(s), either alone or in combination with other projects or plans, with respect to: (i) the site's conservation objectives; and (ii) the site's structure, function, and its overall integrity. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts is undertaken.

The output from this stage is a Natura Impact Statement (NIS). This document must include sufficient information for the competent authority to carry out the appropriate assessment. If the assessment is negative, i.e., adverse effects on the integrity of a site cannot be excluded, then the process must consider alternatives (Stage 3) or proceed to Stage 4.

Stage 3: Assessment of Alternatives

This process examines alternative ways of achieving the objectives of the project that avoid adverse impacts on the integrity of the European site. This assessment may be carried out concurrently with Stage 2 in order to find the most appropriate solution. If no alternatives exist or all alternatives would result in negative impacts to the integrity of the European sites, then the process either moves to Stage 4 or the project is abandoned.

Stage 4: Assessment where Adverse Impacts Remain

This stage includes the identification of compensatory measures where, in the context of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

2.4 Screening for AA Process

The Screening for Appropriate Assessment will incorporate the following steps:

1. Determining whether a project or plan is directly connected with or necessary to the conservation management of any European sites;
2. Describing the project or plan;
3. Identifying the European sites potentially affected by the project or plan;

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4. Identifying and describing any potential effects of the project or plan on European sites, alone, in combination and cumulatively with other plans/projects; and
5. Assessing the likelihood of significant effects on European sites.

The Office of the Planning Regulator (OPR) Practice Note PN01 Appropriate Assessment Screening for Development (2021) states:

“any conclusion of the lack of likely significant effects must be made without consideration of ‘mitigation measures’”.

As described in the OPR Guidance (2021) where the purpose of a measure is not to avoid or reduce adverse effects on European sites, their inclusion in the project does not invalidate the screening. In the case of the proposed works, measures such as pollution control measures are included, which are mandatory under Irish law and objectively intended to avoid marine pollution generally and comply with an international marine pollution convention. It is therefore considered that their inclusion in the project does not invalidate the screening.

2.5 Identifying Relevant European Sites

The identification of relevant European sites to be included in this report was based on the criteria provided in OPR (2021), namely:

- Any European site within or adjacent to the project area; and
- Identification of the zone of influence (Zol) of the proposed works using the Source-Pathway-Receptor model (S-P-R).

2.5.1 Source-Pathway-Receptor Model

The identification of relevant European sites to be included in this report was based on the identification of the Zol of the proposed works using a S-P-R model of effects where:

- A ‘source’ is defined as the individual element of the proposed works that has the potential to impact on a European site, its qualifying features, and its conservation objectives;
- A ‘pathway’ is defined as the means or route by which a source can affect the ecological receptor; and
- A ‘receptor’ is defined as the SCI of SPAs or QI of SACs for which conservation objectives have been set for the European site(s) being assessed.

A S-P-R model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The S-P-R model was used to identify European sites, and their QIs/SCIs, to which the proposed works site could be potentially linked. These are termed as ‘relevant’ European sites/QIs/SCIs throughout this report.

2.5.2 Zone of Influence

The proximity of the proposed works to European sites, and more importantly QIs/SCIs of the European sites, is of importance when identifying potentially likely significant effects. In accordance with the OPR AA Screening Guidelines (OPR, 2021), the S-P-R model has been used to identify the Zol to ensure that relevant European sites are identified. The S-P-R model minimises the risk of overlooking distant or obscure effect pathways, while also avoiding an over reliance on buffer zones (e.g., 15 km), within which all European sites should be considered. This approach follows the DoHLGH 2010 guidance on AA which states that:

“For projects, the distance could be much less than 15 km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects” (DoHLGH, 2010; p.32, para 1).

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Determination of the project's Zol was achieved by assessing the project's requirements and deliverables against the ecological receptors within the project footprint, in addition to all ecological receptors that could be connected to and subsequently impacted by the project through abiotic and biotic vectors.

3 RESULTS

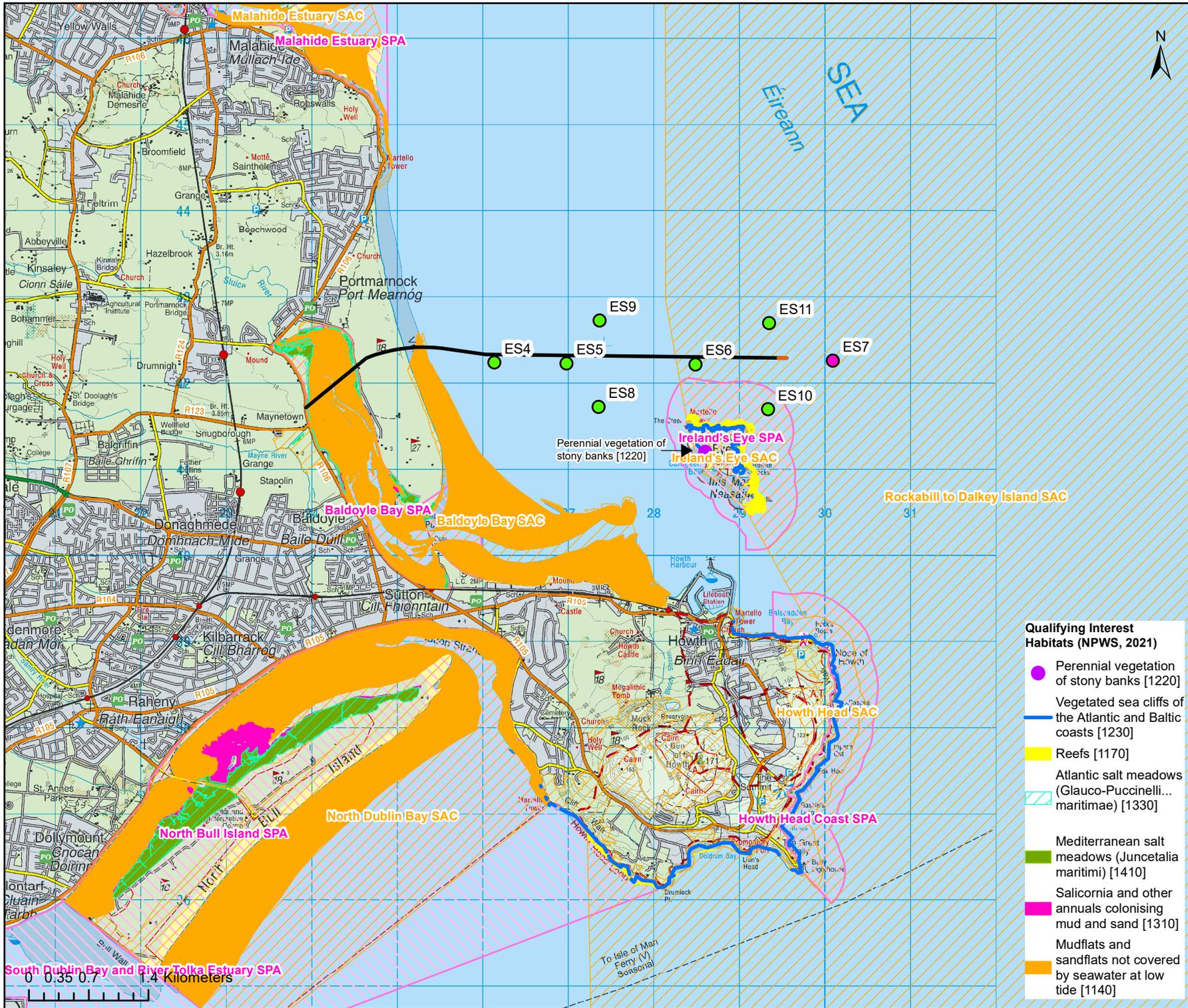
3.1 Ecology of the Surrounding Environment

Detailed bathymetric analysis undertaken in 2012 and 2015 indicated that the proposed outfall pipeline route passes through fine sands into a mixed substrate type of gravelly sand with some large sediment clasts (e.g. cobbles), returning to an area with a thin veneer of fine sands overlying a mixed gravelly sand and shell (Jacobs, 2018a). Seabed photography and sample particle size analysis confirmed this assessment, indicating also that the route has a coarser sub-cropping of sandy gravels in the central section of the route.

At the eastern end of the proposed pipeline sub-cropping of a fine sand veneer over a mixed gravelly seabed was noted in 2012, but more exposed gravels in 2017 indicating highly mobile surface sediments.

The benthic community present was described as typical for the area with a mixed inshore sediment environment, being dominated by annelids and molluscs (*Capitomastus minima*, *Owenia fusiformis*, *Lagis koreni* and *Cirratulus cirratus* whilst the molluscs were *Kurtiella bidentata*, *Fabulina fabula*, *Thracia phaseolina* and *Abra alba*) (Jacobs, 2018a).

Intertidal and sub-tidal reefs of the Ireland's Eye SAC were recorded approximately 1.6km to the south, around the eastern and southern shores of Ireland's Eye (Jacobs, 2018a). Within Rockabill to Dalkey Island SAC, reef community complex was recorded on the islands within the site and also off the coast between Lambay Island and Rush Village (approximately 7.3 km north of the proposed benthic survey locations). No reef features (geogenic or biogenic) were recorded during either the previous bathymetric or benthic surveys in 2012, 2013 and 2017.



Legend

- Proposed Outfall Diffuser Location
- Proposed Outfall Pipeline

Benthic Sampling Locations

- Grab, DDV
- Grab, DDV, Water

Special Areas of Conservation (SAC)

Special Protection Area (SPA)

Data Sources: NPWS

Client
Irish Water

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Figure 3.1
Qualifying Interest Habitats in close proximity to proposed works

RPS West Pier
Business Campus, T +353 (0) 1 4882900
Dun Laoghaire, E ireland@rpsgroup.com
Co Dublin, Ireland. W rpsgroup.com/ireland

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- Qualifying Interest Habitats (NPWS, 2021)**
- Perennial vegetation of stony banks [1220]
 - Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
 - Reefs [1170]
 - Atlantic salt meadows (Glauco-Puccinellia maritima) [1330]
 - Mediterranean salt meadows (Juncetalia maritimi) [1410]
 - Salicornia and other annuals colonising mud and sand [1310]
 - Mudflats and sandflats not covered by seawater at low tide [1140]

3.2 Identification of potential sources of impact

As outlined in the project description (**Section 1.2**), the proposed works are constrained to the eight benthic sampling stations. The works will involve the removal of sediment from the seabed (maximum volume of 10L per sample) for each 0.1m² grab sample at each station totalling twenty-four grab samples. The works will likely be undertaken over a two-day period.

The potential impacts arising from the proposed works are as follows:

- Habitat disturbance/fragmentation: removal of sediment from the seabed.
- Disturbance (presence and noise): potential for heightened disturbance from the presence of the vessel and the noise of the engine while on station.
- Pollution: potential for pollution from accidental spills from the vessel at sea.
- Collision risk: with marine mammals while the vessel is in transit to site and between sampling stations

The likelihood of each of the above potential impacts occurring is assessed using the S-P-R model in **Table 3.1**. Where there is no or extremely low likelihood of an impact occurring as a result of the proposed works, such impacts are scoped out of further assessment.

Table 3.1 Assessment of Source Pathways for the Proposed Works

Source of Potential Effect	Description of Potential Effect Pathway	Potential Zone of Influence of Effect/Relevance of Effect
Seabed substrate removal	<p>The removal of seabed sediment using a Day grab has the potential to directly damage and fragment benthic habitats.</p> <p>Removal of sediment may also disturb the seabed, leading to increased levels of suspended sediment in the water column, potentially resulting in smothering and interference to prey availability for various predator species (fish, marine mammals and birds).</p>	<p>The extent of any increases in suspended sediment concentrations will be highly localised, and the sediment is expected to be mixed/coarse and likely to settle out quickly. It is considered unlikely therefore that increases in suspended sediment concentrations will lead to interference to prey availability for fish marine mammals and birds, given the wider availability of foraging grounds in the area.</p> <p>It is considered therefore that the zone of influence of this effect is limited to the immediate footprint of the grab sample locations.</p>
Disturbance	<p>Physical presence of the vessel, resultant above water and underwater noise have the potential to result in behavioural disturbance to marine mammal and bird species.</p>	<p>Given the location of the proposed works close to Howth and Dublin Ports, it is considered that marine mammals and birds will be already reasonably habituated to the presence of fishing, recreational and commercial vessels in the area. It is considered that the presence and above water noise generated by a single small vessel for approximately two days, which will be stationary during sampling activities will not therefore will not give risk to disturbance to birds.</p> <p>The vessel will emit underwater noise at levels typical of normal vessel activity. However, given existing levels of vessel traffic, underwater noise emitted by the survey vessel for approximately two days is unlikely to represent a significant increase from existing baseline levels. It should also</p>

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be noted that the proposed survey activities (drop down video, grab sampling and water sampling) will not emit any underwater noise.

Disturbance effects to marine mammals and birds are therefore considered highly unlikely and are scoped out of further assessment.

Pollution	Accidental spills from the vessel of hydrocarbons and or other contaminants such as oils and fuels accidentally released during the proposed works from the vessel, with the potential to impact on Annex I habitats and Annex II species.	While at sea the vessel and contractors are legally required to comply with the International Convention for the Prevention of Pollution from Ships (MARPOL) and Irish marine pollution legislation, therefore, accidental pollution is considered highly unlikely and is scoped out of further assessment.
Collision risk	The presence of the vessel moving through the area could potentially present a collision risk to marine mammals whilst in transit.	Due to the nature of the survey, the vessel will spend the majority of its time stationary on sampling stations and will transit at low speeds between stations. Given this, and that baseline marine traffic is relatively high in this area, it is considered reasonable that marine mammals in the area are exposed to vessel traffic on a regular basis and may exhibit some habituation. As a result, collision with marine mammals is considered unlikely to occur and this effect is scoped out of further assessment.

In summary, the following impacts are considered further in this Screening:

- Seabed substrate removal leading to habitat disturbance/fragmentation.

3.3 Identification of potential receptors

Receptor types which are QI/SCIs of European sites with the potential to be affected by the proposed works are:

- Marine benthic habitats;
- Marine birds; and,
- Annex II marine mammal species, namely harbour porpoise.

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3.4 Zone of Influence

Following a review of the project scope of works (collection of a maximum of twenty-four 0.1m² Day grab samples) the Zol of the proposed works is considered be the direct footprint of the grab sampling stations. As previous survey results show, the sediment type in the area is predominantly sand, coarse sand to mixed sediment type. Any sediment disturbance will be minimal and due to the nature of the coarse sediment type, it will rapidly settle back out of suspension. This Zol is considered to be proportionate and appropriate for the proposed sampling techniques for this survey.

3.5 Identification of Relevant European Sites

3.5.1 Assessment of Connectivity

The desk study returned the following SACs and SPAs (**Table 3.2**) that are to be considered in this screening for AA. Although the Zol of the proposed benthic survey was identified as the immediate footprint of the grab samples, as a precautionary measure, all sites within 1 km of the benthic sampling locations were considered for connectivity. These sites are displayed in **Figure 3.2**

Table 3.2 Identification of relevant European sites using Source-Pathway-Receptor model and compilation of information on QI and SCI and conservation objectives

European Site (code)	List of Qualifying Interests / Special Conservation Interest	Distance from proposed works (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Yes/No
Rockabill to Dalkey Island SAC [003000]	One Annex I habitats and One mobile Annex II species <ul style="list-style-type: none"> • Reefs [1170]; and • Harbour porpoise (<i>Phocoena phocoena</i>) [1351] <p>Rockabill to Dalkey Island SAC [003000]</p>	Overlaps with the proposed works	The proposed works occur within this SAC, therefore, as a precautionary measure, the potential for effects on reef habitats are considered further. <p>No connections are identified between the survey works and harbour porpoise, as due to the nature of the works, the occurrence of impacts such as collision risk, disturbance and pollution are considered highly unlikely (see Table 3.1).</p>	Yes
Irelands Eye SPA [004117]	Five bird species: <ul style="list-style-type: none"> • Cormorant (<i>Phalacrocorax carbo</i>) [A017]; • Herring Gull (<i>Larus argentatus</i>) [A184]; • Kittiwake (<i>Rissa tridactyla</i>) [A188]; • Guillemot (<i>Uria aalge</i>) [A199]; and • Razorbill (<i>Alca torda</i>) [A200] <p>Irelands Eye SPA Conservation Objectives</p>	Overlaps with the proposed works	No connectivity. The SCI species of this SPA are seabirds with extensive foraging areas (Woodward <i>et al.</i> , 2019); <ul style="list-style-type: none"> • Cormorant (Mean Max (km) 25.6±8.3 • Herring gull (Mean Max (km) 58.8±26.8. • Kittiwake (Mean Max (km) 156.1±144.5 • Guillemot (Mean Max (km) 73.2±80.5¹ 	No

¹ *Excluding data from Fair Isle where foraging range may have been unusually high as a result of reduced prey availability during the study year ((55.5±39.7)*)

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European Site (code)	List of Qualifying Interests / Special Conservation Interest	Distance from proposed works (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Yes/No
			<ul style="list-style-type: none"> Razorbill (Mean Max (km) 88.7 ± 75.9^2) <p>Therefore, these species will have abundant alternative foraging grounds.</p> <p>As outlined in Table 3.1, due to the relatively small scale of the marine survey carried out by one vessel for two days in an area of existing vessel traffic, disturbance to seabirds with wide foraging ranges is highly unlikely.</p>	
Irelands Eye SAC [002193]	<p>Two coastal Annex I habitats:</p> <ul style="list-style-type: none"> Perennial vegetation of stony banks [1220]; and Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] <p>Irelands Eye SAC Conservation Objectives</p>	0.29	No connectivity. Due to the intervening distance between the closest sampling station and the SAC, dilution effects associated with the marine environment and the relatively small scale of the project, connectivity is highly unlikely.	No
Baldoyle Bay SAC [000199]	<p>Four Annex I habitats:</p> <ul style="list-style-type: none"> Mudflats and sandflats not covered by seawater at low tide [1140]; Salicornia and other annuals colonizing mud and sand [1310]; Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]; and Mediterranean salt meadows (<i>Juncetalia maritim</i>) [1410] <p>Baldoyle Bay SAC Conservation Objectives</p>	0.62	No connectivity. Due to the intervening distance between the closest sampling station and the SAC, dilution effects associated with the marine environment and the relatively small scale of the project, connectivity is highly unlikely.	No
Baldoyle Bay SPA [004016]	<p>Seven Bird species:</p> <ul style="list-style-type: none"> Light-bellied Brent Goose (<i>Branta</i>) 	0.65	No connectivity. The SCI species of this SPA are seabirds with extensive foraging areas (Woodward <i>et al.</i> , 2019), and as outlined in Table 3.1, due to the relatively small scale of	No

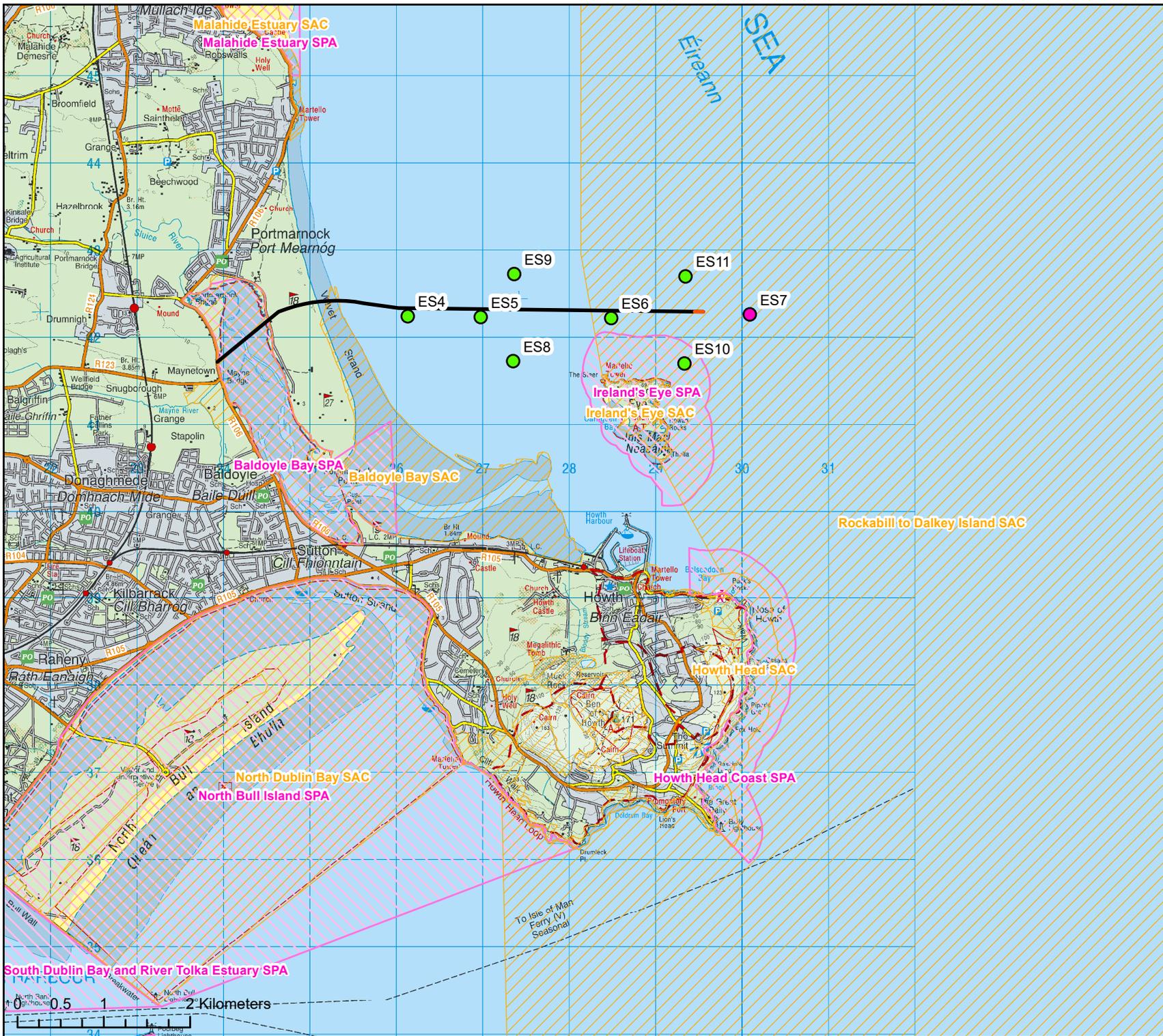
² *Excluding data from Fair Isle where foraging range may have been unusually high as a result of reduced prey availability during the study year ($(73.8 \pm 48.4)^*$)

Greater Dublin Drainage Benthic Survey

European Site (code)	List of Qualifying Interests / Special Conservation Interest	Distance from proposed works (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Yes/No
	<p><i>bernicla hrota</i> [A046];</p> <ul style="list-style-type: none"> • Shelduck (<i>Tadorna tadorna</i>) [A048]; • Ringed Plover (<i>Charadrius hiaticula</i>) [A137]; • Golden Plover (<i>Pluvialis apricaria</i>) [A140]; • Grey Plover (<i>Pluvialis squatarola</i>) [A141]; • Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]; and • Wetland and Waterbirds [A999] <p>Baldoyle Bay SPA Conservation Objectives</p>		the marine survey carried out by one vessel for two days in an area of existing vessel traffic, disturbance to seabirds is highly unlikely.	

Based on the S-P-R model, with the exception of Rockabill to Dalkey Island SAC (Site code: 003000), within which the proposed works takes place, no other European sites have any direct or indirect connectivity with the proposed works. Therefore, with due consideration to the scale and scope of the proposed works, the following European sites will be taken forward for assessment of likely significant effects:

- Rockabill to Dalkey Island SAC.



Legend

- Proposed Outfall Diffuser Location
- Proposed Outfall Pipeline

Benthic Sampling Locations

- Grab, DDV
- Grab, DDV, Water
- Special Areas of Conservation (SAC)
- Special Protection Area (SPA)

Data Sources: NPWS



Client

Irish Water

Greater Dublin Drainage Benthic Survey

Title

Figure 3.2
European sites within the zone of influence of the proposed works



West Pier
Business Campus, T +353 (0) 1 4882900
Dun Laoghaire, E ireland@rpsgroup.com
Co Dublin, Ireland. W rpsgroup.com/ireland

Issue Details

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3.6 Description of European Sites

3.6.1 Rockabill to Dalkey Island SAC Conservation Objectives

The QI of the Rockabill to Dalkey Island SAC are Annex I reefs and Annex II harbour porpoise (**Figure 3.2**). As connectivity between the proposed works and harbour porpoise has been ruled out, the remaining assessment will focus on the reef QI of the SAC, and conservation objectives are provided for reefs only. To maintain the favourable conservation conditions of these reefs within the SAC, the following conservation objectives have been defined by NPWS (as outlined in **Table 3.3**).

Table 3.3 Rockabill to Dalkey Island SAC Conservation Objectives

Conservation Objective	Attribute	Measure	Target
Reefs [1170]	Habitat area	Hectares	The permanent area is stable or increasing, subject to natural processes.
	Habitat distribution	Occurrence	The distribution of reefs is stable or increasing, subject to natural processes.
	Community structure	Biological composition	Conserve the following community types in a natural condition: Intertidal reef community complex and Subtidal reef community complex

4 SCREENING FOR APPROPRIATE ASSESSMENT

4.1 Management of European Sites

AA screening is not required where the proposed works are connected with, or necessary to the management of any European site. In this case, the proposed works are not directly connected with or necessary to the management of any European site(s).

4.2 Assessment of Likely Significant Effects (LSE)

This section considers whether the potential source of impact identified in section 3.2 (removal of sediment/habitat) will have a likely significant effect on the conservation objectives of the relevant QI (reefs) of Rockabill to Dalkey SAC [Site code: 000300].

Subtidal benthic grab sampling utilising a 0.1m² Day grab is the standard method by which marine habitats are monitored within all SACs and SPAs under Article 17 of the EU Habitats Directive and the Water Framework Directive WFD. This is recognised as standard scientific practice and scientifically accepted that such minor sampling has no significant impact on the habitats or species communities being sampled. The total volume of sediment removed by subtidal grab sampling using a Day grab (0.1m² sampling area) will amount to an absolute maximum of 2.4m² of sediment removed. There are four sampling stations located within Rockabill to Dalkey SAC, and a maximum of 1.2m² of sediment will be removed. The closest grab sampling location (ES10) is approximately 230m from the reef habitat on the east coast of Irelands Eye. Sediments surveyed within this area are a mixed substrate type of gravelly sand with some large sediment clasts (e.g., cobbles), returning to an area with a thin veneer of fine sands overlying a mixed gravelly sand and shell (Jacobs, 2018a). Coarser sediment types sink almost immediately to the seabed and are deposited near the sampling site and therefore are less likely to suspend in the water column (Kim et al., 2018). Therefore, it is considered highly unlikely that any sediment suspended following the disturbance of the seabed during grab sampling would remain in suspension long enough to interact with the reef habitat. No benthic sampling is proposed in areas of reef or subtidal reef.

As no sampling will be taking place on any reef in the area, and there is no potential for sediment deposition on reef, there will be no direct or indirect disturbance to this feature from the sampling activities, and therefore favourable conservation condition of reef habitat will be maintained.

4.3 In-combination Effects

While a single development in itself may not cause a significant impact on a European site, when taken in combination with other projects in the immediate area, it may give rise to a negative impact on a given site. As such the cumulative impacts of a project in association with other projects must be taken into consideration when determining the overall possible impacts of the project.

As it has been shown, due to the small scale and location of the proposed works, there is no connectivity, or pathway to likely significant effects to the QI or SCI of any European sites. As there is no potential for effects (significant or not), there is therefore no potential for in-combination effects with any additional projects.

5 SCREENING CONCLUSION

RPS has prepared this report to inform DHLGH's Screening for AA to determine whether the proposed works for the Greater Dublin Drainage Project, individually or in-combination with other plans or projects, and in view of best scientific knowledge, are likely to have a significant effect on any European site(s).

The screening exercise was completed in compliance with the relevant European and national legislation, guidance and current case law. The potential impacts of the proposed works have been considered in the context of the European sites potentially affected, their QI or SCI and their conservation objectives.

Through an assessment of the S-P-R model, which considered the Zol of effects from the proposed works, it was determined that the proposed works are not likely to have significant effects on European sites, alone or in-combination with other plans or projects, and that an Appropriate Assessment is not required.

6 REFERENCES

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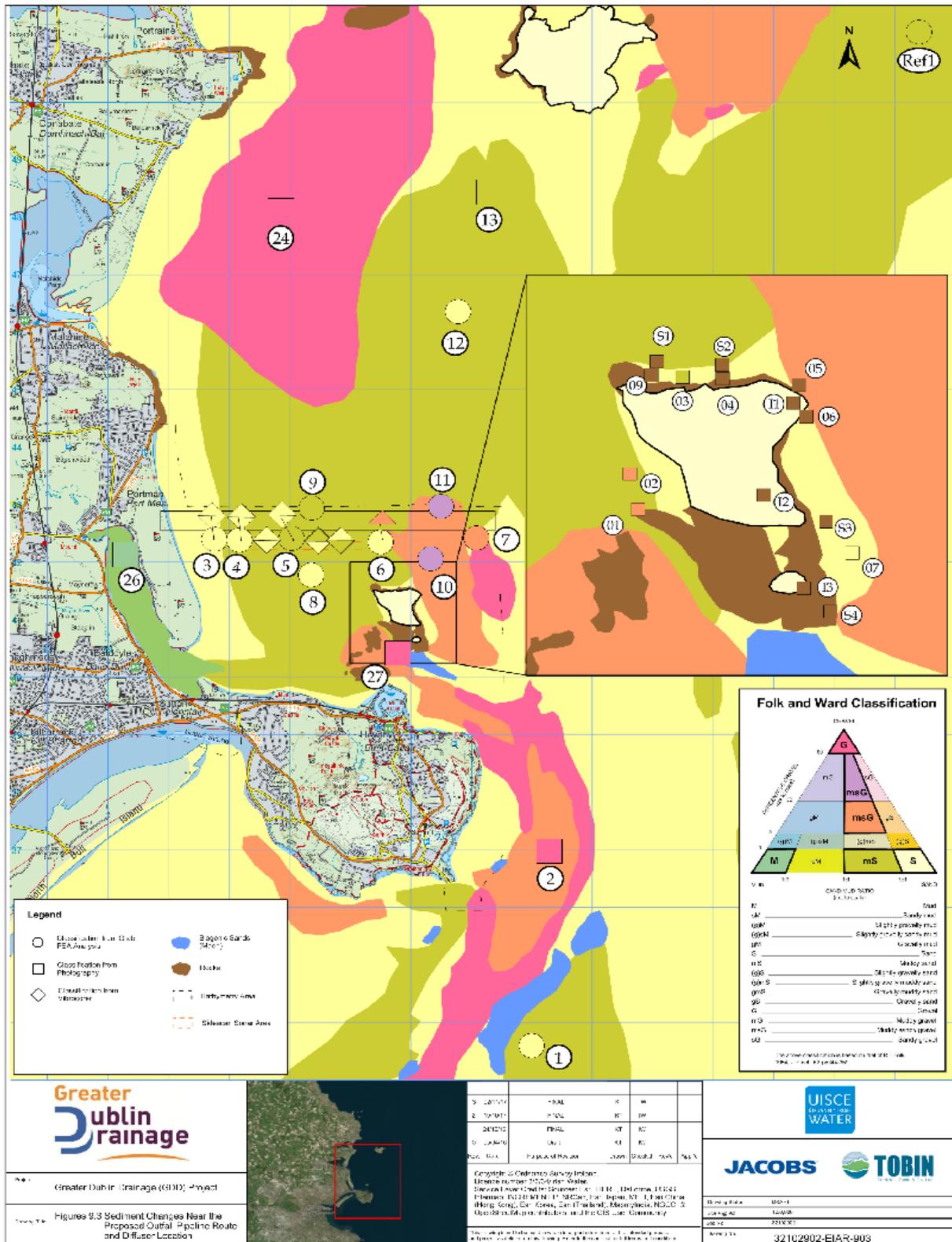
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Appendix A



Sediment types near the proposed outfall pipeline route and diffuser location (Jacobs 2018a)