Hartley Anderson Limited

Marine Environmental Science and Consultancy

Appropriate Assessment

RWE Renewables Ireland, Site Investigations for the proposed Dublin Array Offshore Wind Farm (FS007188)

Report to
Department of Housing, Local Government and Heritage

September 2022

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SECTION 1 - INTRODUCTION

1.1 Background

Arup with Hartley Anderson Limited have been commissioned by the Department of Housing, Local Government and Heritage (DHLGH) to conduct an Appropriate Assessment (AA) (stage 2) to ascertain whether an application for a Foreshore Licence by RWE Renewables Ireland Limited (RWE) to undertake site investigation works in relation to the proposed Dublin Array offshore wind farm development (Reference No. FS007188) will adversely affect the integrity of the Natura 2000 sites identified by AA Screening (stage 1) for the likelihood of significant effects. The purpose of the proposed site investigations are to collect geophysical, geotechnical, ecological and metocean data from the proposed array area, export cable corridors and related landfalls.

1.2 Application documents submitted

A number of application documents submitted by RWE have informed this AA, including:

- Application form [Applicant: RWE]
- Foreshore Licence Site Investigation Area Map
- Annex A - Co-ordinates of Proposed Foreshore Licence Area
- Annex B - Drawings showing activity locations
- Annex C - EIA Screening and Environmental Report
- Annex E - Report to inform Appropriate Assessment Screening
- Annex F - Applicant's Natura Impact Statement

- Public Consultation (18 November – 17 December 2021)
    - Public submissions
    - Applicant's Response to Public Submissions
- Prescribed Bodies Consultation (18 November – 17 December 2021)
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- Public Consultation (30 June – 29 July 2022)
    - Public submissions
    - Applicant's Response to Public Submissions
- Prescribed Bodies Consultation (30 June – 29 July 2022)
    - Prescribed Bodies Observations
    - Applicant’s response to Prescribed Bodies Observations

1.3 Relevant consultation responses

On 23 June 2022, the Department determined that an Appropriate Assessment of the proposed site investigations in relation to the proposed Dublin Array offshore wind farm development was required. The following documents were published on the Department’s website:

- Submission on Screening for Appropriate Assessment Determination [23 June 2022]
- Approved Screening Determination for Appropriate Assessment (signed by Minister) [23 June 2022]
- Marine Advisor Environment Screening Stage Report [20 June 2022]
- Screening for Appropriate Assessment Technical Review [Hartley Anderson 2022]

A notice of the fact that the Minister had made an Appropriate Assessment Screening Determination was published on 30 June 2022. The notice stated that any person could make a submission or observation concerning the project from 30 June to 29 July 2022.

The following tables provide a summary of consultation submissions received following the most recent consultation (30 June to 29 July 2022) from the Prescribed Bodies and Applicant's responses (Table 1.1), as well as public submissions and the Applicant's responses (Table 1.2). Also provided are summaries of observations made by Prescribed Bodies and Applicant's responses (Table 1.3), and public submissions and Applicant's responses (Table 1.4) with respect to the initial consultation (18 November – 17 December 2021). Note that most of the responses are not directed at the Habitats Directive aspects of the proposal.

Table 1.1: Summary of Observations made by Prescribed Bodies (30 June to 29 July 2022) and Applicant's Response

Statutory Body	Applicant's Response
Foreshore Marine Advisor (Environment) Your email of the 30th June 2022 refers to this licence application for Site Investigation for the proposed Dublin Array wind farm off the coast of Counties Dublin and Wicklow. This coastline hosts a variety of coastal habitats, its intertidal habitat supports populations of waterbirds of national and international importance. It is also nationally and internationally important for is breeding sea bird colonies in particular the population of Roseate terns on Rockabill. Furthermore it is an area of conservation importance for marine mammals including grey and harbour seal and harbour porpoise. As you will note from my Screening Stage Report of the 20th of June 2022 I agreed with and accepted the outcome of the IEC's review of the environmental reports associated with this application. As stated in my Prescribed Bodies Consultation of the 7th February 2022 I have no objection to this application subject to a complete environmental assessment. I will provide site specific conditions once the environmental assessment process is complete.	Noted that the Foreshore Marine Advisor (Environment) had no objection to this application subject to a complete environmental assessment and that site specific conditions will be provided once the environmental assessment process is complete.
Commissioners of Irish Lights Thank you for contacting the Commissioners of Irish Lights requesting observations on this foreshore licence dated 13th July 2022. Irish Lights has reviewed this application and have had previous consultations with RWE Renewables Ireland. Our observations are as follows: Numerous Aids to Navigation lie within the foreshore licence map area, but in particular the following aids are within the Geophysical survey boundary site: Kish Lighthouse North Kish Buoy East Kish Buoy Bray outfall	Noted the presence of Aids to Navigation within the foreshore licence area and as requested care will be exercised to avoid damage to same. All vessels which will be engaged to undertake the environmental monitoring and site investigations which are the subject of this Foreshore Licence application will be assessed and selected on their suitability for the specific activity. All vessels and crew will comply with relevant codes, regulations and conventions including the following key IMO conventions: • International Convention for the Safety of Life at Sea (SOLAS) • International Convention for the Prevention of Pollution from Ships (MARPOL)

Statutory Body	Applicant's Response
Greystones outfall Commissioners of Irish Lights request mariners navigating around the coast of Ireland to exercise the greatest care to avoid damage to existing Aids to Navigation. Any works adjacent to existing Aids to Navigation should ensure a wide berth, paying particular attention to the strength of wind and tide. If you have any questions please do not hesitate to contact myself or a member of the team.	• International Convention on Standards of Training, Certification and Watch-keeping for Seafarers (STCW) • Convention on the International Regulations for Preventing Collisions at Sea (COLREG) • International Convention on Load Lines (LL) Vessels will operate within safe limits in terms of significant wave height, current and wind speed. Positioning systems and procedures shall be in accordance with guidelines for GNSS positioning in the oil and gas industry (OGP Report 373-19, 2011) and the International Hydrographic Organisation standards for hydrographic surveys, Fifth edition (IHO, 2008) as referenced in ISO19901-8.
Foreshore Marine Advisor (Engineering) **Project overview:** RWE Renewables Ireland Limited (RWE) are applying for authorisation to undertake a geotechnical and geophysical site investigation for the proposed Dublin Array offshore wind farm development, in addition to ecological and wind, wave and current monitoring. **Brief description of works:** *Geotechnical survey* • Up to 61 geotechnical boreholes to an approximate depth of 80m below seafloor and an outside diameter of up to 254 mm. • Up to 61 Deep push seafloor Cone Penetration Tests (CPT) to an approximate depth of 80m below seafloor with a diameter of approximately 40mm. • Up to 31 Seafloor CPTs with a diameter of approximately 40mm and 48 vibrocores with a diameter of approximately 150 mm diameter. The target depth of each technique will be approximately 6 m below seafloor. • Up to five of each type may be located within the intertidal area. • Up to 12 nearshore geotechnical boreholes with wireline logging and Rotary Cored Drilling, approximately 100 mm diameter to target depth of 45 m below seafloor (4 at each landfall option). *Geophysical survey* • Refraction survey in nearshore & intertidal	Noted that the Foreshore Marine Advisor (Engineering) had no objections to the granting of a Foreshore Licence subject to the conditions listed above. RWE accept the recommended conditions and will ensure that all contractors and subcontractors working on its behalf are fully aware of all conditions and requirements.

Statutory Body	Applicant's Response
• 2D UHR & geophysical survey including Bathymetric Survey, Side Scan Sonar, Shallow Reflection Seismic (Sub-bottom Profiling) and Marine Magnetometer • Bathymetric Survey, Side Scan Sonar, Shallow Reflection Seismic (Subbottom Profiling) and Marine Magnetometer; • Wind, wave and current measurement • Up to two buoy mounted Floating Lidar (FLiDaR) Units and up to two buoys incorporating wave and current measurement devices. *Ecological monitoring* • Up to 10 static acoustic monitoring devices (SAM) • Up to 3 annual subtidal benthic ecology surveys comprising drop down video, grab sampling and epibenthic trawls 5 • Up to 3 annual potting survey and 12 seasonal trawl surveys (4 per year for up to 3 years) • Up to 3 annual benthic ecology survey Further information on techniques and equipment of the SI are included in the Supporting Information Report (Date: September 2021 Document No: 003747593-01 Rev: 0.2) which accompanies the application. The duration of the licence sought is up to 5 years to allow for delays and to enable surveys that may be required in the preconstruction phase of the wind farm project to be completed at the appropriate time. RWE Renewables Ireland Ltd are responsible for designing the works in accordance with the relevant standards and codes. **Coastal Processes** The proposed site investigation works will have no impact on the existing coastal processes. **Estate Management** All foreshore is presumed state owned unless proven otherwise. In this case there are no known established claims of private ownership of the foreshore at this location. Subject to no claims of private ownership arising out of the application and public consultation process, the foreshore the subject of this application is state owned. Section X of the Foreshore Act applies for the proposed site investigation. The licence area for the proposed works is shown outlined on the following map submitted by the applicant:	

Statutory Body	Applicant's Response
• Map entitled 'Foreshore Licence Map' dated 30/9/2021 Rev 7 The proposed area of foreshore associated with the works is 112,986.34ha. The site investigation will have no permanent impact on other legitimate users or existing access arrangements. The applicant shall use that part of the foreshore, the subject matter of the application for the purposes as outlined in the application and for no other purposes whatsoever. Where relevant the foreshore and adjacent seashore area shall be restored to its natural state on completion of the works to the satisfaction of the Department of Housing, Local Government and Heritage. **Public Interest** Section 2 and 3 of the 1933 Foreshore Act, as amended, states that a lease or licence of state foreshore may be granted "If, in the opinion of the Minister, it is in the public interest". As foreshore is a finite and valuable national resource and public amenity, it is important that each plan and project is fully assessed to ensure, that if consented to, it is a sustainable and proper use of that finite and valuable resource. Having considered and assessed the relevant issues associated with the proposed site investigation, whiletaking note that the state owned foreshore is finite resource which must be utilised sustainably, I am satisfied that the proposed works are in the Public Interest. **Conclusion/Recommendation** I have no objection to the granting of a Foreshore Licence subject to the following conditions: 1. The Licensee shall use that part of the foreshore, the subject matter of this licence for the purposes as outlined in the application and for no other purposes whatsoever. 2. The works shall be located as outlined on Map entitled 'Foreshore Licence Map' dated 30/9/2021 Rev 7. 3. Subsequent to the Date of Execution, the licensee shall notify the Department of Housing, Local Government and Heritage at least 14 days in advance of the commencement of any works on the foreshore. 4. Each year, the licensee shall submit a revised Programme of Works setting out the works planned for the coming calendar year and the programme for the overall completion of the works associated with the licence.	

Statutory Body	Applicant's Response
5. The licensee shall advise all maritime users within the licence area of any changes to navigation or hazards to navigation arising because of proposed works within the licence area, via all means at their disposal. 6. During the course of the works the licensee shall ensure that existing public access arrangements are maintained, where possible, and all necessary precautions are put in place to protect the public in accordance with relevant Health and Safety Legislation. 7. On completion of the works, the surrounding foreshore shall be returned to its natural state to the satisfaction of the Department of Housing, Local Government and Heritage. 8. The licensee shall ensure that contractors, and their subcontractors, are made aware of all conditions and project specific requirements and they are required to have briefings on these to ensure all parties are fully aware of these requirements.	

Table 1.2: Summary of Observations made by the Public (30 June to 29 July 2022) and Applicant's Responses

Public Submission	Applicant's Response
Submission 1 **Private** The observer notes their opposition to all parts of the proposed development for the following reasons: • Destruction of seascape. The view would be ruined for miles off the coast; • Disturbance to dolphins etc by the work and also by the electrical fields; • Killing of birds by giant turbines; and • The proposed development is near Rockabill Island, an important breeding place.	The Foreshore Licence application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable corridor to shore and associated infrastructure only. It is not an application for consent to construct the proposed development. Information to inform the Minister's assessment of the potential for effects of the proposed works on marine mammals and birds, alone and in-combination with other plans and projects is provided in Sections 4.2 and 4.3 of the Applicant's NIS, Annex F to the application. Given the localised nature of any effects from geotechnical and geophysical site investigations and commitments made to implementing appropriate mitigation measures (Section 4.4 of Annex F) no adverse effects upon the European Site's integrity as a result of the proposed site investigations and ecological monitoring are anticipated.
Submission 2 **Private Fisher** The observer is a fisherman working in the area. They have three vessels and seven men working there for twenty plus years. There has been no consultation with fishermen as to where these wind farms will be placed. It has been a bully boy attitude that they are going to be built so get on board. There has been more lies told to Europe by the Government on the status of Kish, Bray and Codling Banks than could be made up. This has been brought to the attention of the European Commission by many groups including fishermen. The observer is part of an existing industry operating in this area and won't be moving from this area for RWE/Codling or any other wind farm company's (ESB). REPORT on the impact on the fishing sector of offshore wind farms and other renewable energy systems | A9-0184/2021 | European Parliament (europa.eu)	The Applicant is committed to continuing engagement with fishers regarding the planning and delivery of the survey works included within the Foreshore Licence application and the coexistence of the two industries in the longer term. A Fisheries Liaison Officer has been in place for the project since May 2019 and will continue to be available to the fishing community to ensure effective communications during the planning and execution of the proposed surveys.
Submission 3 **Private Fisher** The observer owns a fishing boat that fishes for whelk in the area. The observer is very concerned that the proposed site investigations will have a negative	The Applicant is committed to continuing engagement with fishers regarding the planning and delivery of the survey works included within the Foreshore Licence application and the coexistence of the two industries in the longer term. A Fisheries Liaison Officer has been in

Public Submission	Applicant's Response
impact on their ability to earn a living and pay for their boat plus wages for two crew men. This is the first they have heard of this stage as they haven't been consulted.	place for the project since May 2019 and will continue to be available to the fishing community to ensure effective communications during the planning and execution of the proposed surveys. The Fisheries Liaison Officer is well known to fishers active in the proposed survey area and has made their contact details available to them.
Submission 4 **Gus Cullen Solicitors on behalf of Fisher Clients and Seafood Clients** The observer refers to their objection on 29 September 2020 and the Applicant's responses and are filing this further objection and FOI request on behalf of East Coast Fishers. **Primary Concern** The observer has been retained by the fishermen whose names and vessels are set out [redacted] fishermen primarily from the Codling, East Coast Sea Stacks, Dublin Array, Kish, Wicklow, and Arklow area. Their clients are increasingly concerned at the far reaching proposals for wind farms in the Irish Sea. They see major lacunae and neglect in the approach of the sponsoring companies to their opportunity, income and livelihoods in fishing in the Irish Sea. They agree there are merits in Windfarms and need for greener energy. If it was one wind farm it would not be such a concern. It is the cumulative effect of multiple windfarm projects surveying and applying for construction permits for Windfarms invading their fisheries, forcing out the whelk, lobster and crab to the demise of their whelk, lobster and crab industry and the future livelihood of their clients with their boats and equipment. **National Policy Implications** The nature and extent of these applications and related adjacent applications by other Wind Farm Companies are of such a scale that a comprehensive framework is required if these developments are to proceed in a manner consistent with the interests and constitutional rights of traditional fishermen, navigation, and the community generally. It is the adverse cumulative effect of all the surveys and all the windfarms that is of concern and the subject of this objection. The development of wind energy is important strategically and economically. It requires a coherent and joined up approach which gives due regard to the	The majority of the comments made in public submission 4 appear to be addressed to the State rather than the Applicant. The Applicant would however like to reiterate that they are committed to continuing engagement with fishers regarding the planning and delivery of the survey works included within the Foreshore Licence application and the co-existence of the two industries in the longer term. A Fisheries Liaison Officer has been in place for the project since May 2019 and will continue to be available to the fishing community to ensure effective communications during the planning and execution of the proposed surveys. The following paragraph of public submission 4 raises matters in relation to Appropriate Assessment which is the subject of this consultation. 4. Impacts on the environment. ……The CJEU developed this point when it issued a ruling in case C-461/17 ("Brian Holohan and Others v An Bord Pleanála") that determined inter alia that Article 6(3) of Directive 92/43/EEC must be interpreted as meaning that an appropriate assessment must on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the conservation objectives of the site. In that regard, consideration has been given in this Habitats Directive appraisal to implications for habitats and species located outside of the European sites considered in the appraisal with reference to those sites' Conservation Objectives where effects upon those habitats and/or species are liable to affect

Public Submission	Applicant's Response
interests not just of wind power developers and the exigencies of energy planning, but also to the impacts on the marine environment, on fishing activity and the livelihoods of the fishermen who have traditionally made their livelihood from fishing in the area. The following issues arise: 1. Nature and extent of the applications 2. Stages of Development: surveys, construction, development and operation. 3. Impact on fishers - fisheries impact assessments 4. Impacts on Environment 5. Exploitation of marine resources. **Nature and extent of the applications** The applications for foreshore licences cover substantial areas in the immediate vicinity of the East Coast of Ireland and in this application Arklow, Codling, Sea Stacks, Dublin Array, Bray Banks and Kish. It is also clear that significant areas of the Exclusive economic zone outside the foreshore area may be absorbed or impacted by wind farms. They are included in the geotechnical surveys. If the true impact of these developments is to be assessed, then it should not be done on a piece meal basis, but it should be done in an integrated way. This will involve both the Foreshore Acts 1933 as amended and the Continental Shelf Acts. It appears that some of the proposed development and surveys will extend beyond the Foreshore and into Ireland's exclusive economic zone on the Continental Shelf and require careful statutory processes to avoid an ultra vires situation. It must consider the MARA Act and National and EU policy documentation and Marine Spatial Plans. **Stages of Development** The proposed developments will have different impacts as they progress. It is necessary to distinguish four stages as follows (a) the surveys stage, (b) the physical planning stage, (c) development stage and construction, and (d) the operating stage. It is suggested that a coherent and consistent approach to the each of these stages should be mapped out, so that all those concerned and affected by these major developments are in a position to take an informed view.	the conservation objectives of the sites concerned. This means all environmental impact studies ought take into account the negative effect of the survey and works on all species including whelk both in and outside the survey area. I have done a word search the for "whelk" in one environmental impact study and it is not there. The Appropriate Assessment Screening methodology as applied in Annex E of the application documents, follows the source-pathway-receptor (S-P-R) approach which is a standard conceptual model that is used across a number of European Directives to characterise the means (pathways) via which effects arising from the proposed works could be experienced by receptors (sensitive qualifying interests of a European site). All three elements of the s-p-r framework must be present to conclude a potential effect-pathway. Effects upon supporting habitat (defined as areas that can be used by a species, in particular those which may be listed as a feature of a designated site, to support that species survival and/or reproduction) may provide a pathway to an effect on a European site and are therefore given consideration in the Appropriate Assessment Screening process. Section 3.3 of Annex E defines the geographical scale over which possible effects from the proposed works may arise, the "zone of influence" as, • The area over which direct effects could occur within the project footprint; • The area of indirect impact surrounding the project footprint; and • The area that captures remote sites where species distribution/ ranges provide connectivity. The potential effects on supporting habitats of relevance to the features of the European Sites within the zone of influence of the proposed activities have been detailed in the Screening Assessment presented in Annex E. This is also the conclusion Screening for Appropriate Assessment conducted by the Independent Environmental Consultant

Public Submission	Applicant's Response
In what follows below the observer concentrates on the fisheries and environmental aspects. **Impacts on fishers** Of critical concern to the observer is that the current daily users of the Irish Sea, the fishermen they represent, who use it as a workplace have not been consulted adequately in the process to date. Their concerns relate to the impacts of each of the stages of large-scale development identified in paragraph 2 above. These impacts concern (i) the potential loss of opportunity to fish, (ii) the loss of income and, (iii) ultimately the loss of livelihood. If these developments are to proceed in a manner consistent with established rights of local fishers, it is imperative that the agencies of the state ensure that mechanisms are put in place to vindicate the fisher's rights. The observer believes that inter alia, this requires an independent assessment of the impacts in paragraph 3 on fishers at each of the stages mentioned at paragraph 2. The observer believes that to expedite development the most effective means would be to put in place a mediation process to compensate for those losses at each stage. Ideally a national strategy and framework would be negotiated and agreed. It is of real concern that the environmental impact studies do not include mention of Whelk, Crab or Lobster. **Impacts on the environment** A major consideration in assessing these applications must be evaluation of the likely impact of developments of this scale on the spawning beds and fishery grounds in the area being assessed for proposed development. It is suggested that the parameters of the exploratory work should be in partnership with the existing users, and not independently of them and their ongoing activities. The observer's fisher client report to them that their catch since the last RWE and Codling survey is down 40% to 70%. This devastating damage to whelk and other fish stocks since the last survey needs to be independently investigated. Their fisher clients firmly believe this reduction is a consequence of the last surveys. Their clients are willing to liaise with the evidence of their reduced turnover with an investigation by the Department.	(IEC) appointed by the Department of Housing, Local Government and Heritage (DHLGH). Common whelk are not listed in any Annex of Directive 92/43/EEC and do not support the survival or reproduction of the qualifying interests of European sites within the zone of influence of the works. Whelk are therefore not discussed in Annex E, Report to Inform Appropriate Assessment Screening. The Applicant would however like to refer the correspondent to following documents which were submitted as part of the Foreshore Licence Application – The Supporting Information Report and Annex C, EIA Screening and Environmental Report. Common whelk, European lobster, brown crab, velvet crab, scallops and nephrops are identified in these documents as commercially important shellfish species within the vicinity of Dublin Bay, on account of their landings weight and value. Whelk in particular has been identified through consultation with the local fishing fleets as the primary target species. The effects of noise and of seabed disturbance resulting from the proposed survey activities are presented in Annex C EIA Screening and Environmental Report, which concluded that the effects on shellfish species would be both temporary and highly localised.

Public Submission	Applicant's Response
Their client's experience is that after each sonic/seismic survey the whelk disappear from the surveyed area for at least 2 years. It is of real concern that the environmental impact studies do not include mention of Whelk, Crab or Lobster. The loss and damage from construction and operation stage is likely to be far greater. Their clients experience of the existing underwater power cables is that there is no fish life within a half mile of each side of the existing power cables. When Turbines are constructed safety regulations and 4.5 knot tides make it too dangerous for fishermen to operate near or between turbines. Evidence of the decline of fish stocks caused by the surveys is the reduction of the fish factories (Sofimar and Errigal) from 7 days per week to 5 days per week. The CJEU developed this point when it issued a ruling in case C-461/17 ("Brian Holohan and Others v An Bord Pleanála") that determined inter alia that Article 6(3) of Directive 92/43/EEC must be interpreted as meaning that an appropriate assessment must on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the conservation objectives of the site. In that regard, consideration has been given in this Habitats Directive appraisal to implications for habitats and species located outside of the European sites considered in the appraisal with reference to those sites' Conservation Objectives where effects upon those habitats and/or species are liable to affect the conservation objectives of the sites concerned. This means all environmental impact studies ought to take into account the negative effect of the survey and works on all species including whelk both in and outside the survey area. The observer has done a word search for "whelk" in one environmental impact study and it is not there. This is not good enough. Further the observer has been instructed by their client to draw attention to the proposed boreholes surveys in the Cable Corridors off the Booterstown Special Area of Conservation in the Codling, due to be carried out in the next week as per Marine Notice 29 of 2022, and other likely survey applications. Their clients understand that some of these boreholes will be in 2 metres of water at or	

Public Submission	Applicant's Response
adjacent to the Land Bird Sanctuary of the Booterstown Special Area of Conservation. **Exploitation of wind resource** The offshore wind resource is a national marine resource in much the same manner as fish or hydrocarbons. It therefore raises issues regarding exploitation and distribution of benefit. There needs to be fairer balance and proper consideration of the destruction of the Whelk, Lobster and Crab fishing grounds. It is of real concern that the environmental impact studies do not include mention of Whelk, Crab or Lobster. **Proposal for a way forward** The observer's clients have identified the following as critical: 1. Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 envisages maritime spatial planning as a cross-cutting policy tool enabling public authorities and stakeholders to apply a coordinated, integrated and transboundary approach. At the core should be a national strategy, a National Marine Spatial plan, drawn up in consultation with the competing economic interests, and those affected by the possible or probable Marine development. Members of the public should be afforded the opportunity to input and comment on any draft plan. The adoption of such approach would be a matter for government, as well as EU level, much as the County Development Plans are a matter for local authorities. Such an approach could consider in a holistic way, not just the distribution of economic benefits, but also environmental impacts, the impacts on fishing communities, impacts on Navigation, the impacts of exclusion zones and so forth. It is of real concern that the environmental impact studies do not include mention of Whelk, Crab or Lobster. 2. Financial and compensatory arrangements in relation to the short, medium and longer term should be independently assessed and developed to address the loss of opportunity to current economic players, and in particular fishermen for their loss of opportunity during exploratory work, and their loss of income during development, and any loss of livelihood consequent on operation of the wind projects. It is their clients' sincerely held view that their traditional fishing	

Public Submission	Applicant's Response
industry, particularly whelks, crabs and lobsters will cease to exist because these fish stocks will be wiped out. Their traditional livelihoods will be ended. The new wind industry will displace and destroy this traditional whelk, crab and lobster fishing industry. Such displacement and destruction is not authorised by Marine Spatial Plan but unless duly considered it will happen by stealth and neglect. Any good wind developer must be asked as part of their survey application be asked to take on board the likely demise of this fishing industry. Further the Foreshore department as grantor of licences and body responsible for implementation of the EU Directive must bear responsibility for any failure of balance of interest giving rise to the demise of the whelk, lobster, and crab industries. 3. Appropriate environmental studies should be identified in conjunction with fishers and scientists and concluded before embarking of elements of these projects which might have unassessed impacts. It is of real concern that the environmental impact studies do not include mention of Whelk, Crab or Lobster. 4. The Department is requested in its consideration of the granting of Maritime Area consents under the Act to give due consideration to the whelk and inshore fishermen including: a. under section 282(3)(f) "conditions aimed at protecting rights to fish in the maritime area;" b. under section 282(3) (g) "conditions for, or in connection with— (i) the protection of the marine environment (including the protection of fisheries)," c. under DIRECTIVE 2014/89/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 establishing a framework for maritime spatial planning, Article 5 Objectives of maritime spatial planning, 1. When establishing and implementing maritime spatial planning, Member States shall consider economic, social and environmental aspects to support sustainable development and growth in the maritime sector, applying an ecosystem-based approach, and to promote the coexistence of relevant activities and uses. 2. Through their maritime spatial plans, Member States shall aim to contribute to the sustainable development of energy sectors at sea, of maritime transport, and of the fisheries and aquaculture sectors, and to the preservation, protection, and improvement	

Public Submission	Applicant's Response
of the environment, including resilience to climate change impacts. In addition, Member States may pursue other objectives such as the promotion of sustainable tourism and the sustainable extraction of raw materials. d. under DIRECTIVE 2014/89/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 establishing a framework for maritime spatial planning, Article 6 Minimum requirements for maritime spatial planning 2(b) "take into account environmental, economic and social aspects, as well as safety aspects;" and Article 8 requires when Setting-up of maritime spatial plans to take into account "— fishing areas,". e. under section 120 of the Act application for surveys SCHEDULE 8 sets out Types of conditions that MARA may attach to Licence including 13. A condition requiring the holder of a licence to appoint— f. (a) a fisheries liaison officer to consult with the Sea Fisheries Protection Authority and relevant fishers ' groups to ensure that appropriate actions are taken to avoid or minimise any adverse interactions between the activities or operations the subject of the licence and any ongoing fishing activities in the part of the maritime area the subject of the licence. It is contended by their clients that this is not happening and that the fisheries liaison officers are more concerned with telling fishermen why they must give way to the Windfarm industry to the detriment and eventual demise of the Whelk, lobster, and Crab fishing industry. **Conclusion** It is of concern to their fishing clients that consents are being considered and granted on a piecemeal basis without due consideration for thier clients' industry interests as stakeholders in the Irish Sea. The projects now being contemplated involve a major incursion into the Irish Marine area. As such it would be appropriate to agree an overall approach and principles. A collaborative consultative process with the fishers being impacted could be used to guide developments and take proper and timely account of impacts, and avoid the dislocation and delays which failure to involve the affected fishermen will trigger.	

Public Submission	Applicant's Response
On behalf of the observers' fishers clients, the observer would ask to be included in a meaningful process in relation to the impacts on their clients, with a view to a mediated resolution of the income and opportunity issues which these proposed developments raise for their clients. There is a parallel between the manner in which it was necessary to articulate a policy in relation to offshore hydrocarbon exploration. It is pointed out that the environment and economic implications of wind power development could be at least as significant – possibly even more so. This is an opportunity for the relevant Departments to take a leadership role and balance and mediate a pragmatic co-existence relationship and financial framework between the fishermen and the Windfarm developers. If the Government departments responsible for implementation of the EU Directives choose not to adequately protect their clients fishing livelihoods or compensate in lieu it is contended that this is a failure to so implement those directives and liability for such loss will then lie with the State. Please consider the legal implication of this. Further, the observer is instructed to hereby to seek from the Department a map showing all of the existing, proposed and applied for windfarm foreshore licences in the area from Dun Laoghaire Southward in the Irish Sea, together with projected cable corridors and each Department assessment its estimated impact on the Whelk, Lobster and Crab fisheries in the area the subject matter of this letter.	
Submission 5 **Wild Kildare** The basis of the observer's concerns regarding this Wind Energy related application (and others in the Irish Sea) are routed in recent revelations via hundreds of records released to Coastal Concern Alliance, a citizens' group, under Freedom of Information and Access to Information on the Environment rules, which raise serious questions for habitat protection and wind farm development in the Irish Sea – a synopsis of this investigation can be found via the following link https://iwt.ie/dodgy-dealings-under-the-sea/.	The matters raised in this submission are related to the actions of the State rather than the Applicant. Specifically in the context of direct impact on the Kish and Bray Banks, Annex E, Report to Inform Appropriate Assessment Screening provides a calculation of the combined footprint from all subtidal sampling techniques, including the footprint of the jack-up vessel and deployment frame, and buoy deployment across the entire Foreshore Licence area as 4,311m^2. Only a proportion of these activities are planned to take place on the Kish and Bray Banks, however even assuming that all activities occurred on the banks, the footprint would

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The serious matters raised in the above link are now subject of an EU investigation – in light of this the observer believes the granting of this application at this time is highly premature and will further erode public confidence in how various government departments apply relevant National and EU rules in this space. Furthermore the ongoing failure of this state to implement the required MPA's in the Irish Sea ahead of such Wind Energy related works will undoubtedly lead to further legal and planning complications down the line.	amount to 0.013% of the total area of the banks*. The fine sand and gravel sediments which cover the banks are highly mobile and regularly disturbed by natural processes. Any additional sediment disturbed by the works will fall out of suspension almost immediately. No significant effect on the potential Annex 1 habitat are therefore predicted. *The total area of the Kish and Bray Banks has been taken to be the area within the than 20m contour an is calculated to be 35km^2.
Submission 6 **The Adela-Hare Centenary Commemoration Committee** The Adela-Hare Centenary Commemoration Committee wish to make the following further observations regarding the application submitted by RWE Renewables Ireland Limited to undertake geotechnical and geophysical site investigations and ecological, wind, wave, and current monitoring to provide further data to refine wind farm design, cable routing, landfall design and associated installation methodologies for the proposed Dublin Array offshore wind farm and in particular the public consultation for purposes of conducting a Stage Two Appropriate Assessment. In doing so, the observer wishes to refer to their previous submission and associated with the above proposed development dated the 16/12/2021. As previously stated by the committee, this investigative foreshore licence application for geotechnical and geophysical site investigations would impact negatively on the following Natura 2000 conservation sites: • Howth Head Coast SPA [004113], • South Dublin Bay and River Tolka Estuary SPA [004024], • North Bull Island SPA [004006], • Dalkey Islands SPA [004172], • The Murrough SPA [004186], • Howth Head SAC [000202], • South Dublin Bay SAC [000210], • North Dublin Bay SAC [000206], • Rockabill to Dalkey Island SAC [003000], • Bray Head SAC [000714], • The Murrough Wetlands SAC [002249].	No data has been included in the submission to support the contention that the geophysical and geotechnical investigations would negatively impact (or the nature and extent of such impacts) on the Natura 2000 sites. On the basis of the screening assessment, presented in Annex E of the application documents, no impacts will occur on the qualifying interests of Howth Head Coast SPA and Dalkey Island SPA due to the limited spatial and temporal extent of the surveys proposed. Howth Head SAC, Bray Head SAC and the Murrough Wetlands SACs were also screened out as the features of conservation interest for those sites are not found within the Foreshore Licence area and no impact pathway exists to these features, e.g. vegetated sea cliffs and European dry heath. The North Dublin Bay SAC is outside the area of any possible direct impact from the geophysical and geotechnical surveys, or areas of wind wave and current and Static Acoustic Monitoring deployment. Ecological grabs will be taken using a 0.1 to 0.2 m^2 Hamon or Van Veen grab, the resulting increase in suspended sediment which may result will be highly localised and no likely significant effects on the qualifying features the North Dublin Bay SAC are anticipated to occur. The Screening for Appropriate Assessment conducted by the Independent Environmental Consultant (IEC) appointed by the Department of Housing, Local Government and Heritage (DHLGH) agrees with these conclusions, "*The applicant has used a Source-Pathway-Receptor approach to identify sources of possible effects associated with the proposed*

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The proposed geotechnical and geophysical site investigations and follow on offshore wind farm development has the potential to cause permanent damage to the fragile sand banks off the east coast of Ireland thus impacting on the above Natura 2000 conservation sites and their associated ecology/biodiversity importance. It is the observer's belief that the Dublin Bay coastline would be under serious threat from loss of the protection that the sand banks offer. The proposed development will fundamentally change the character of Dublin Bay as we currently know it. The introduction of man-made features into a highly designated land and seascape could significantly change perceptions of the County Dublin coastline. It is a known fact that offshore wind farm infrastructure, if located in the wrong place, can cause the loss of habitat particularly on the seabed. Cables to bring the energy produced from offshore wind farms onshore are normally buried below the seabed but in some cases, this is not feasible and consequently cables are covered with rock armour, causing a loss of habitat. This could further cause a loss of important nursery grounds for fish and vital feeding areas for marine mammals and birds. The construction, operation, and decommissioning phases of offshore wind farms, exert pressures on marine environmental receptors, i.e., any species or habitat supporting that species. These include plankton, fish, marine mammals, birds, etc. It is a known fact that offshore wind development can affect hydrodynamics and in turn have implications for important and endangered fish species. Even seagrass, saltmarsh, and deep-sea mud, all of which can be disturbed by offshore windfarm construction, play a vital role in storing large amounts of carbon, so disturbing them to build a windfarm is counter-productive and defeats the purpose in the first instance. Offshore wind farms should be well excluded from high biodiversity and ecologically sensitive areas containing threatened marine species and habitats, particularly those situated in or in the vicinity of areas with valuable seascapes. It is the observer's belief that the Natura 2000 conservation sites list above are well located within the foreshore licence application area and should be indeed	*project which have the potential to interact with qualifying interests of relevant Natura 2000 sites. Given the nature and scale of the proposed works, the possible effects, SPA/SAC site selection and feature screening is deemed appropriate, and an adequate level of information has been provided to justify the screening conclusions for the sources of effect which have been assessed."* The remaining sites listed by in the submission, i.e. Rockabill to Dalkey Island SAC, South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA have been screened in for Appropriate Assessment. The conclusions of the Applicant's Appropriate Assessment (Annex F of the application documents) are that with proposed mitigation in place, there are no likely significant effects on the qualifying interests of these SPAs or SACs. The mitigation measures have been set out in Section 4.4 of Annex F, The Applicant's NIS, which is included in the application and made available for public consultation. The geophysical surveys use techniques which do not come into contact with the seabed. The geotechnical sampling techniques include small diameter boreholes (up to 254mm), vibrocores (150mm) and cone penetration tests (40mm) which will not affect the stability of the sand banks. There is therefore no consequent effects due to a loss of protection on the coastline or European designated sites in the vicinity. The remainder of this submission relates to the wind farm itself rather than the site investigation and surveys which are the subject of this Foreshore Licence application. An application for development consent under Maritime Area Planning Act, 2021 as amended and its associated consent framework will be submitted in due course. The Environmental Impact Assessment Report which will be submitted with the development consent application will include a full and detailed assessment covering the areas raised in the submission namely potential effects from the proposed wind farm development on seascape and visual receptors, physical processes, seabed habitats, fish, shellfish, marine mammals and birds. Information will also be

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deemed valuable seascapes. The risks far outweigh the benefits gained and would be in breach of and contravenes provisions as set under the EU Habitat's Directive (Council Directive 92/43/EEC). The committee urge's the Department of Housing, Local Government and Heritage to give this matter it's full intention and in doing so, refuse to grant a foreshore licence for this proposed development.	submitted to assist the consenting authority (An Bord Pleanála) to undertake an Appropriate Assessment Screening and Stage 2 Appropriate Assessment as required under the European Communities (Birds and Natural Habitats) Regulations 2011.
Submission 7 **Private** **FS007188 RWE SI** **Consultation on Stage 2 AA** AA for Proposed Dublin Array Offshore Windfarm Foreshore Licence. Re: Killiney Bay proposed Shanganagh Landfall Cable Site Area Shanganagh coastal areas (DLR Map 10) and further considerations. **SAC Rockabill to Dalkey Island** **Proposed Landfall Cable Site Area at Killiney River Estuary Area.** A close scrutiny of the SAC grid southern boundary area reveals that this lies within 1.5 km of the Deansgrange River Estuary and the distinctive rocky 'reef' area in the intertidal shore area just to the north of the Deansgrange River. (This is often visible from mid to low tide periods and is a feature of the beach contour) The southern grid points are 53° 14' 51'' N: 6° 5' 27 '' W. The Shanganagh River Estuary is just another 500 metres to the south. The SAC should probably be designed to encompass the river inflow areas as they are an intrinsic influence on the SAC instead of stopping abruptly short of them. Due to the flat nature of the immediate hinterland this is perceived to be convenient site for landfall cables.	The Applicant notes the very detailed information and data sources provided in this response. The Applicant is aware of the presence of areas of rocky reef in the nearshore between Killiney and Bray. The intrusive seabed surveys and site investigations, which are the subject of this Foreshore Licence application will be sited so as to avoid direct effects on these features. The design of the cable landfall and the selection of trenchless methods of installation for the proposed wind farm cables will also avoid impact on these ecologically important habitats. Effects upon supporting habitat (defined as areas that can be used by a species, in particular those which may be listed as a feature of a designated site, to support that species survival and/or reproduction) may provide a pathway to an effect on a European site and are therefore given consideration in the Appropriate Assessment Screening process. The potential effects on features of the Natura 2000 Sites located within the zone of influence, due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites, have been considered in the Screening Assessment presented in Annex E. The area of direct habitat disturbance i.e. the footprint of the proposed activities, is 0.004km^2. Temporary, localised increases in suspended sediment will result from some of the proposed activities, but will drop out of suspension rapidly and the effect will be negligible in the context of the highly dynamic baseline environment. No significant effects on the qualifying interests of the designated sites

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The river mouths on this section of beach are not in fixed channels though they require regular dredging as a flood prevention measure, which may give the impression of defined channels following a fresh dredging. In effect these inshore waters are a buffer zone for the SAC. Disturbance and disruption of food chains in the nearshore area could have an adverse effect on the well being of the porpoise population nearby. With a prolonged survey period, followed by heavy construction of landfall cables and the possible cumulative impacts of more than one company operating intensive surveys in the same nearshore area, long term impacts may reduce the conservation success of the SAC. At the same time, if survey activity (etc) has to avoid the SAC waters, that confines the traffic and intensity of activity to the immediate nearshore zone, with further impacts on coastal biodiversity. This is not yet an 'industrial' zone but may be reduced to one in the coming decades. It ready facilitates the Shanganagh Bray Wastewater Treatment Plant which is due for expansion soon and the major long sea Outfall Pipe which brings treated waste water one kilometre out into the Bay. The Rocky Reef north of the Deangrange River Estuary provides both respite and foraging for seabirds that typically include cormorants, heron, black headed gulls and herring gulls. Crab and small fish provided sustenance along with Sea Lettuce. Wrack and Kelp seaweeds feature on the rocks depending on the water quality and red algae can also be frequently be seen at this location. A full assessment of the typical algae is necessary at different times of year. Limpet and barnacle are generally found on the reef rocks. Further monitoring of the biodiversity on this reef is required as it can also support octopus and lobster. This habitat is already susceptible to changes in water quality and silting along with potential smothering by eutrophic green algae when the seawater nutrient load is out of balance. This can apply to rockpool areas further along the Shanganagh Coast and tends to peak in late summer.	as a consequence of effects on supporting habitat are therefore predicted. The Appropriate Assessment Screening methodology as applied in Annex E, Report to Inform Appropriate Assessment Screening of the application documents, follows the source-pathway- receptor (S-P-R) approach which is a standard conceptual model used to characterise the means (pathways) via which effects arising from the proposed works could be experienced by receptors (sensitive qualifying interests of a European site). All three elements of the s-p-r framework must be present to conclude a potential effect-pathway. There is no pathway for an effect from the proposed surveys and site investigations upon the terrestrial and littoral species identified in the section of the submission reproduced above. The limited scale and nature of the proposed works will not have an effect on the form or function of the sandbanks or the coastline. The potential impact upon marine geology, oceanography and physical processes of the wind farm development, alone and cumulatively with other proposed wind farm projects, will be assessed and the results reported in the Environmental Impact Assessment Report (EIAR) which will accompany the development consent application under the Maritime Area Planning Act, 2021 as amended, and its associated consent framework in due course. The EIAR will address physical, biological and human receptors, including commercial fisheries and will also include consideration of the effects of electromagnetic fields on ecological receptors.

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Pelagic fish can also be in the area depending on the season. In autumn 2021 sprat attracted shoals of mackerel into Killiney Bay, along beaches and as far as Coliemore Harbour Dalkey. The nearby Shanganagh River Mouth and Estuary is also regularly frequented by seabirds including oyster catchers in winter, among other species. The river lagoon below the old stone railway bridge provides extra shelter to birds. Turnstones can be observed all along this shore. Brown trout, sea trout and sometimes eel feature in the Shanganagh River and continue upstream into the wetlands area. Marine bird species overlap with land birds along this section of shoreline. Seal also pass close to the coast here on a north to south axis along Killiney Bay. Otter are known to breed on the outer rocky area between Bulloch Harbour and Dalkey and are observed at times between Seapoint and the Shanganagh River where they continue upstream to the Loughlinstown Common and beyond. This is a recognised corridor and the pattern was confirmed in the latest DLR survey. There was a recent sighting in mid July 2022. Along with porpoise other cetaceans can be sighted in inshore waters. **Butterflies** The fringe vegetation in this area and along the clifftop to the south of the Shanganagh River continues to support several butterfly species and is a special habitat for two particular grassland butterflies in the peak summer months: Ringlet and Meadow Brown. Numbers have held well over the past decade in spite of Climate Change impacts, coastal erosion and increased recreational trampling. Habitat is being lost to these species in other parts of DLR due to building expansion (eg Woodbrook, but other areas too) Statistics show that grassland butterflies are generally in decline in Europe. (NBDC reports etc)	

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Bats Bats are regularly observed by the old stone bridge across the Shanganagh River and also along the clifftops to the south. Further data on both the foraging and migrant bats is necessary. Bats have probably been associated with the area for many decades from when the hinterland was predominantly rural and agricultural in character. **Sandmartins nesting in the Glacial Cliffs.** These migrant birds are a typical feature of the Shanganagh River estuary area and all along the glacial cliffs almost as far as Woodbrook to the south. There are a number of breeding colonies between the Shanganagh River Estuary and Corbawn Lane Beach Access at the proposed cable link landfall sites. They can be observed dipping in and out of the river waters while still in flight. In a recent survey of the soft cliff between the Shanganagh River and Woodbrook several 'tufa' sites were identified by DLR. **Drift Line and Fringe or Transitional Vegetation.** Seashore species consistently feature Sea Radish, Sea Spurge, Sea Beet, Sandwort, Mayflower, Sea Holly, Tree Mallow, Sea Rocket and even Sea Kale along with grasses such as Lyme while Kidney Vetch, Bird's Foot Trefoil, Tree Mallow, Cowslip, Meadow Scabious and many more varieties grow on the cliff edges or upper shore vegetated zones. Many of the species serve to anchor the shifting shingle with creeping stems just below the surface and help provide a more stable natural protective barrier to the nearest inshore areas. These systems are already under pressure with the impacts of storms, climate change and coastal erosion. They help break the force of possible tidal surges along with the old Victorian railway embankment that spans the immediate upper shore. **Overlapping small scale habitats and wildlife corridors.** Though the Killiney/Shanganagh/Hackettsland shore area is small and confined there are several overlapping habitats including river wetland, meadow, estuary, shingle shore, soft glacial cliff and rocky intertidal patches. Disturbance to any part can fragment the eco systems.	

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A full ecological assessment of the flora and fauna (including insects and other pollinators) of this area is overdue. It already suffers the pressures of climate change, and increase in recreational use with an expanding population, impacts of antisocial behaviour such as scrambler bikes and the existing threats to the water quality of rivers and the receiving sea waters. It is essential to get an accurate picture of the shoreline with regular 'walkovers' to monitor pressure points especially following highest tides and stormy episodes in an area which is already subject to change by natural processes. **Possible Landfall Cable Link site on the beach below the Shanganagh Waste Water Treatment Plant via the seabed.** At high tides and during storms the water comes right up to the cliff edges at this location and for much of the coast from the Shanganagh River Estuary to Bray. Storm forces continue to erode the soft cliff at this location. Routing cables through this dynamic environment will be challenging and require sufficient space for the initial works along with on-going repairs and maintenance over the years. A distance of 250 metres to the river mouth is very tight especially when the river is in full flood. Wind force can determine the path of the exit water channels that also scour the beach. Marine Spatial Planning was not in place before the landfall cable link site was proposed at this location (and by more than one company). There are concerns about the impact of Electromagnetic fields from cables on the passage of fish and mammals. There is a possible impact also on crabs. Any onshore cable links that need access to the electricity Grid will also require a route that may further disrupt the immediate coastal and terrestrial habitats and cause loss of biodiversity. It is difficult for the local community to predict where the routes may be especially if a requirement for purchase of adjacent land may emerge at some stage. The proximity to any other projects that may also be operating in this space would also be an issue.	

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Wider Impacts on Killiney Bay and beyond. Over the past 30 years there have been several coastal protection projects along Killiney Bay: the construction of a berm bank and the import of rock armour at the north end of the bay; re-enforcement of the soft cliff between the Military Road access steps and the Seafield Road Railway Underpass access point; the recent Corbawn Lane access update and the Bray Landfill Remediation works which are still underway at Bray North Beach just beyond Woodbrook Shankill. These are all indicators of the extent of coastal erosion and have an impact on longshore sediment cycles over time. The Corbawn and Bray project plans went through a full Part 8 local authority planning process so people were given an opportunity to submissions with full information and site drawings available. These works may ultimately result in a narrowing of the beaches over time. That was factored in to the risk assessments at the time and the information was available to the public when various options were under discussion. As the old landfall site was shedding material into the surrounding environment and sea there was an urgent problem to be addressed. Rock Armour at the Bray site will be put in place during the final phase of the work and is not yet in situ. The wider implications of fixed foundations for turbines along the Kish and East Codling sandbanks will also have an implication on sand cycles across Killiney Bay and these concerns are shared by other communities along the east coast as other proposals come into the picture. Inshore fishermen are very concerned about the changes with which they may have to contend. The sand banks are natural protective barriers to Dublin Bay, Killiney Bay and parts of the Wicklow coast and have been so for centuries. There is a danger that we may upset this balance in the race to implement rapid changes. Cumulative impacts from the combined effects of turbines in close proximity to each other, on tidal currents and wind patterns are an increasing possibility in addition to the already observed increase in Coastal Erosion as a result of natural processes and climate change. Beaches at Greystones, Brittas Bay and Courtown, County Wexford are just some that have changed in character in the past 30 to 50 years with erosion often as a driving factor. Communities in the north Dublin Coastal areas also	

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question the impacts of so many wind farm developments at the same time. Inevitably these will bring about changes to inshore waters, coastal habitats and for the species that depend on those habitats. There has been a call for clear modelling of the tidal processes predicted by the introduction of windfarms to the nearshore marine environment to be demonstrated to the public. 'Revitalising Our Shores', the recent report by Regina Classen for Fair Seas draws the observer's attention back to Phytoplankton, the major key to healthy marine eco systems and the basis for sustainability of all marine species. Ireland is still well placed to protect its life abundant waters as long as vigilance is maintained in marine planning. The observer trusts that the Department will give these observations serious consideration.	
Submission 8 **Wild Defence Ireland** This submission is made in addition to the previous observation by Wild Ireland Defence CLG (17 December 2021) regarding the proposed development application seeking foreshore licence consent. The following is submitted in good faith and based on concerns regarding achievement of the objectives of the Nature Directives. As noted previously, responding to the ecological crisis at an international level the EU Commission concludes that both the Habitats and Birds Directives (providing strict protection for protected habitats and species) remain fit for purpose. However, the need to better implement both directives is emphasised: *"Commission evaluation shows Nature Directives are fit for purpose.* *On 16/12/2016 the Commission has published the 'Fitness Check' evaluation of the EU Birds and Habitats Directives (the 'Nature Directives') and concluded that, within the framework of broader EU biodiversity policy, they remain highly relevant and are fit for purpose.*	A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended, and the associated consent framework. The development consent application for the proposed wind farm will be subject to an independent environmental impact assessment by An Bord Pleanála under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process. The current Foreshore Licence application for monitoring surveys and site investigation is accompanied by a Report to Inform Appropriate Assessment Screening (Annex E) and Applicant's NIS (Annex F). The assessment methods follow the guidance produced by DEHLG (2009) and OPR (2021) and the precautionary and proportionality principles that underlie the Habitats Directive. Screening for Appropriate Assessment has been completed by an Independent Environmental Consultant appointed by the Department of Housing, Local Government and Heritage and the Minister of State has concluded that a Stage 2 Appropriate Assessment, the subject of this consultation, is

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However, full achievement of the objectives of the Nature Directives will depend on substantial improvement in their implementation in close partnership with local authorities and different stakeholders in the Member States to deliver practical results on the ground for nature, people and the economy in the EU." (Available at: https://ec.europa.eu/environment/nature/legislation/fitness_check/index_en.htm) The coastal, marine and protected environments are experiencing ever increasing pressures from various developments, including the development of offshore alternative energy. To be sustainable, these developments must be reconciled with meeting the State's obligations regarding environmental protection. It is imperative that all EU legal instruments supporting sustainable development and coexistence of relevant but conflicting activities in the marine environment are fully implemented in a manner consistent with legislation and case law. It is requested that competent authorities ensure their observations, examinations, assessments and determinations are fully informed in accordance with the provisions of the Birds and Habitats Directives, as interpreted by legislation and case law. At this time of unprecedented loss of biodiversity it is critical that the competent authorities, on behalf of the public and future generations, are certain their determinations clearly demonstrate the precautionary principle.	required. The Stage 2 Appropriate Assessment will be undertaken by the Minister of Housing, Local Government and Heritage on completion of this consultation.
Submission 9 **Killiney Bay Community Council** Killiney Bay Community Council (KBCC) notes that the imposition of site examination techniques on the Kish and Bray sandbanks, by RWE/Dublin Array, is of particular concern. KBCC pledges to protect, care and improve their neighbourhood, which includes the marine environment.	The designation of Marine Protected Areas is an active workstream being progressed by the State currently (gov.ie - Marine Protected Areas (www.gov.ie)). This process is outside of the control of RWE. The application documentation demonstrates that with the committed techniques proposed to be employed, the limited scale and temporal extent of the proposed site investigations, they will not have any significant effects on the environment. A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended, and the associated consent

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KBCC refers to the proposed development activity in locations off the coast of Dublin and County Wicklow, in preparation for the installation of multiple wind turbines. This will involve the granting of a Foreshore Licence to undertake geotechnical and geophysical site investigations and ecological, wind, wave and current monitoring to provide further data to refine wind farm design, cable routing, landfall design and associated installation methodologies for the proposed Dublin Array offshore wind farm. KBCC notes in regard to the proposed location of wind turbines at a distance of approximately 10km from Killiney Beach, that this area has not yet received the attention or, if confirmed, the identification of a Marine Protected Area (MPAs). We see this as a deviation from proper planning, whereby zoning of the near shore Irish Sea for the purpose of mapping the ecology systems is not taking place in tandem with the assignment to developers of such portions of the Irish Sea for the construction of multiple wind turbines. This anomaly enables the assignment of large portions of near shore territory to developers, without reference to MPA's. 1. Geophysical and technical specifications These are indicative of site preparation for infrastructural works on the Kish and Bray Banks. KBCC note that the legislation which replaces the foreshore licence does not consider the following: • Reference to historic applications for a single proposed project, and concomitant historic failures in winning a foreshore licence, with reference to making provision to rectify these failures before a new foreshore licence process can proceed. • Consideration of alternative sites: in an application for a foreshore licence, it is necessary for the applicant to consider alternatives. (this applies to both lease and licence applications.) • The visual representation of the proposed height of the turbines in Killiney bay. KBCC cite the Offshore Energy Strategic Environmental Assessment Review and Update of Seascape and Visual Buffer Study for Offshore Wind Farms (Hartley Anderson, March 2020, and 2022). Visual impact studies consider	framework. The location of the proposed development is not within a site designated as an SAC or an SPA. The development consent application will be subject to an independent environmental impact assessment by An Bord Pleanála under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process. This application, submitted under the Foreshore Acts 1933 to 2014, as amended, is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route(s) to shore and associated infrastructure. In the absence of any risk of adverse effects on the integrity of a European site, there is no obligation to consider alternatives to the proposed Foreshore Licence application. The proposed windfarm will be the subject of further consultation in the future as part of the development consent process under the Maritime Area Planning Act, 2021 and the associated consent framework. An Environmental Impact Assessment Report will be submitted with the application which will include an assessment of the potential impact the wind farm may have on a range of receptors including seascape, marine mammals, birds, navigation, recreational uses and the physical environment. Consideration of the potential impact of the proposed wind farm on UNESCO Dublin Bay Biosphere and proposed Natural Heritage Areas will also be included along with impacts on other designated sites within the vicinity of the proposal. The development consent application documents will also include details of the alternatives considered and the reasons for selection of the site. The Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any site preparation nor permanent installations. The "pre-construction surveys" the correspondent refers to are ecological monitoring surveys, including mobile surveys and deployment of static acoustic monitoring devices. Where ecological monitoring is required it is best practice to

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impingement on shorelines to be critically important, especially adjacent to high public amenity beaches such as Killiney Beach. In connection with these omissions, KBCC notes the following protections in place for Killiney Bay: • Killiney Bay is adjacent to the southern end of the UNESCO Dublin Bay Biosphere Partnership, which includes management by Fingal County Council, Dublin City Council, Dun Laoghaire County Council, Dublin Port Company and the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage and the Gaeltacht. • In reference to the Supplementary Map contained in the Dun Laoghaire County Development Plan 2022-2028, we note that this map continues south across Killiney Bay to a point opposite the Martello Tower and offers a grid of protection to marine life. https://docreader.reciteme.com/doc/view/id/629f3b85187c4 • Killiney Beach is the recipient of the Bord Failte grant of 1M for the construction of an Amenity Centre for sea water sports. https://www.failteireland.ie/tourismnews/19m-investment-announced-water-based-activity-facilities.aspx In this context, KBCC take note of the de-listing in 2012 of the Special Area of Conservation (SAC) designation for the Kish bank. in 2012. KBCC seek an explanation for this removal of this protection, and whether the absence of this SAC, which was fully compatible with SAC requirements, was made in order to favour the development of wind farms on these sandbanks. In this context, we examine the proposed objective to install 61 turbines, 310 metres high, on the Kish Bank, and the continuation to include the Bray Bank. 2. Geophysical Site Investigation Survey Analysis of the extensive detail presented in RWE Renewables Ireland regarding a geophysical site investigation, confirms their intention to construct the platform for the proposed turbines on one inshore site, the Kish and Bray sandbanks, approximately 10kms from Killiney Bay. This is not site evaluation, this is preparation for site construction.	acquire a number of years of baseline data and for this reason RWE are seeking permission to commence ecological monitoring, if required, in 2023. Foundation design requires detailed, location specific, information on seabed conditions such as soil stability. This information is needed to ensure the structural integrity of foundation design and to minimise effects on the receiving environment. The proposed surveys and site investigations will have no impact upon the integrity of the Kish and Bray Banks. The points raised by the correspondent are in relation to the proposed wind farm, which will be subject to a future application for development consent under the Maritime Area Planning Act, 2021 as amended, and the associated consent framework. It should be noted that the effects of climate change are already having a damaging effect on biodiversity and ecosystem functions. These effects include rising sea levels, more intense storms, increased risks of flooding and deterioration in water quality. The Climate Action Plan 2021 includes plans to increase the proportion of Irelands renewable electricity to up to 80% by 2030, including an increased target of up to 5 gigawatts of offshore wind energy. If the proposed Dublin Array wind farm achieves development consent in the future it will make a significant contribution to the delivery of these targets. The urgent need for climate action does not remove the need for proposed offshore wind farm projects to be designed to minimise environmental effects and to be subject to robust environmental assessments so that the consenting authority (An Bord Pleanála) can make balanced judgements regarding the acceptability of the proposal. The development consent application for the proposed wind farm will be subject to independent environmental impact assessment by An Bord Pleanála under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process.

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The term ipse dixit is appropriate in this case: the assertion is, 'this is just how it is' dominating the argument by opting out of alternative arguments: declaring that the issue is intrinsic, and not open to change. This logical fallacy uses an assertion that the Kish and Bray Bank area, as shown on RWE Renewables site maps, is the only site available in Killiney Bay. KBCC believes that the information provided does not 'provide complete, precise and definitive information capable of removing all reasonable scientific doubt as to the effects of the works' with reference to: • the integrity of the Kish and Bray banks • 'pre-construction survey' or 'Array area' determines and reinforces and confirms the premise that this will be the area identified for construction, regardless of distance from shore, height of the turbines or ecological effect. KBCC questions the purpose of this geotechnical survey. RWE Renewables state there is a necessity to examine foundation design, the size and installation methodology and to finalise cable route and landfall design and installation methodology, this work is effectively, to KBCC's knowledge, preparation for construction. Technology allows modelling for foundation design without the use of heavy machinery. A model will not damage the site for which a project is not yet decided. 3. Proposed Benthic and Sea Floor Testing a) Cone Penetration Tests in the Array area and Export Cable Corridor KBCC notes that up to 61 seafloor Cone Penetration Tests, up to an approximate geologically shallow depth of 80m below seafloor are proposed within the Kish and Bray sandbank area, and 31 CPT's to an approximate depth of 6m below the seafloor in the export cable corridors which extend into the area. Three of these are in the subtidal locations where a CPT rig will be lowered to the seafloor from a suitable vessel by a deck mounted crane or a-frame. An instrumented cone, with a diameter of approximately 40mm, will then be pushed into the seabed at a constant speed. Continuous measurement of the cone end	As above, the points raised in the submission are in relation to the proposed wind farm, and are not the surveys and site investigations which are the subject of this Foreshore Licence application or current consultation. The proposed windfarm will be the subject of a development consent process under the Maritime Area Planning Act, 2021 as amended, and the associated consent framework. The Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any, site preparation nor permanent installations. The designation of Marine Protected Areas is an active workstream being progressed by the State currently (gov.ie - Marine Protected Areas (www.gov.ie)). This process is outside of the control of RWE. The application documentation demonstrates that with the committed techniques proposed to be employed, the limited scale and temporal extent of the proposed site investigations, they will not have any significant effects on the environment. This application is solely for ecological monitoring and site investigation works, the latter required to inform the engineering and design of the offshore wind farm, the cable route(s) to shore and associated infrastructure. The proposed windfarm will be the subject of a future development consent application under the Maritime Area Planning Act, 2021 as amended and the associated consent framework. Drilling muds comprise a mixture of seawater and an approved drill fluid selected from the 'OSPAR List of Substances/Preparations Used and Discharged Offshore which are considered to Pose Little or No Risk to the Environment'. This drill fluid can be either bentonite or Purebore or equivalent which is based upon a natural potato starch. Within each Borehole approximately 250 kilogrammes of additive, dissolved in $10m^3$ of seawater, will be used. Drilling fluids will be returned to the vessel and re-used or returned to shore for disposal, however some loss of drilling fluids is possible. All drilling fluids will be fit for purpose and selected from the 'OSPAR List

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resistance, the friction along the sleeve of the cone and the pore water pressure will be recorded. The cone will then be recovered to the rig and the rig returned to the vessel. The duration of operation at each CPT location within the RWE area is expected to be up to 6 hours. In the intertidal area a similar process will be undertaken from a tracked vehicle. b) Vibrocores Vibrocores will be taken across the export cable routes which extend into the RWE Array area. Up to 48 Vibrocores, approximately 150 mm diameter and penetration depth of up to approximately 6 m will be taken. Five of the 48 Vibrocores may be located within the intertidal areas. A vibrocore rig will be lowered to the seafloor from a suitable vessel by a deck mounted crane or a-frame. A vibrocore head will be attached to the core barrel and will induce high frequency vibrations in the core liner. The sediment in immediate contact with the core barrel forms a 'liquefied' boundary layer enabling the core barrel to penetrate the sediment strata. A core-catcher is attached to the end of the barrel which holds the sediment inside the barrel when withdrawn from the sediments. Each core would have a sediment sample volume of approximately 0.05 m^3. The expected duration of the vibrocoring operation at each location is less than 5 minutes. In the intertidal a similar process will be undertaken from a tracked vehicle. c) Boreholes Up to 61 subtidal boreholes to a geologically shallow depth of 80 m below seafloor are proposed within the RWE Array area to target proposed foundation locations. A borehole is a method of drilling into the seabed to recover samples and enable downhole geotechnical testing to be completed. A drilling head is lowered to the seabed via a drill string with an outside diameter of up to 254 mm and stabilised using a seabed frame. The drill string is then rotated to commence boring. Tools are lowered into the drill string to recover samples or conduct in-situ soil test to see if drilling fluids will be fit for purpose and where possible selected from the 'OSPAR list of substances/preparations used and discharged offshore which are considered to pose little or no risk to the environment'. The offshore boreholes will be left to back-fill naturally. The duration of the operations at each borehole location within the RWE Array area is expected to be approximately 48 hours. Four boreholes are also planned at each of three	of Substances/Preparations Used and Discharged Offshore which are considered to Pose Little or No Risk to the Environment'. Given the nature of the material and the small volumes potentially released to the environment there is no likely significant effect on any of Natura 2000 sites within the study area as set out in the Report to Inform Appropriate Assessment Screening, Annex E of the application documents. All the proposed geotechnical survey techniques are of small diameter and sampling locations are within a highly dynamic area with strong sea currents. The voids created by the borehole drill and vibrocorers (254mm and 150mm diameter respectively) will fill naturally immediately following the removal of the equipment, leaving only a minor impression on the seafloor, which will fully over subsequent tidal cycles. CPTs do not remove any material and the hole created by the penetration of the cone (up to 40mm diameter), will infill almost instantly upon removal of the equipment. It is not clear what is meant by "the threshold tolerance " in this submission. As explained above in response to Submission 3 the methodology applied to Appropriate Assessment Screening and presented in Annex E, Report to Inform Appropriate Assessment Screening, follows a standard source-pathway-receptor (s-p-r) approach to identify the potential for effects to arise as a result of the proposed surveys and site investigations. All three elements of the s-p-r framework must be present to conclude a potential effect-pathway. Effects upon supporting habitat (defined as areas that can be used by a species, in particular those which may be listed as a feature of a designated site, to support that species survival and/or reproduction) may provide a pathway to an effect on a European site and are therefore given consideration in the Appropriate Assessment Screening process. The Report to Inform Appropriate Assessment takes a precautionary approach and concludes that potential effect pathways for five sites

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possible landfall locations (i.e. 12 in total). The nearshore boreholes will be in water depth of 0 to 7 metres and will be to a target depth of 45m below seafloor. The external diameter of the drill pipe will be approximately 100 mm. The nearshore boreholes would either be backfilled or grouted to within 2m of surface of the base of mobile sediment typically using a 2:1 bentonite cement mix. The surface will be reinstated to previous condition as the investigations at each location are completed. Pre and post investigation site photographs will be taken. The duration of the operations at each borehole location within the intertidal area is expected to be approximately 36 hours. d) Coastal Erosion Considerations: We have now reached greenhouse induced climate scenarios. Sea levels are rising (see BBC Met Office). The presence of multiple turbines along the East Coast of Ireland will affect wind-wave energy and currents. Anthropogenic interference in littoral processes, via aggregate offshore extraction, excavation and construction of wind towers, raises concerns re. coastal erosion, which has a severe effect, devouring coastal habitats. In addition, independent and impartial reference to the destruction of habitat of birds, mammals, fish and invisible benthic ecosystems must be included in these accounts. 4. Costings Considerations: Costings are an essential condition for a public appraisal and evaluation of profit and loss balances deriving from the installation of multiple wind turbines within and near to the pristine Killiney Bay area. A. Factor the monetary value of, offset by the damage to, the benthic ecosystem proximate to the Dublin Bay Biosphere and proximate SAC within Killiney Bay Note: Supplementary Map https://docreader.reciteme.com/doc/view/id/629f3b85187c4 Value the proximity of this area to the Special Area of Conservation, Rockabill to Dalkey. B. Define, weigh and calculate the ecological valuation of the Kish and Bray sandbanks as spawning grounds for fish and molluscs, and feeding grounds for seabirds. Such valuations are now current in environmental research institutes.	cannot be ruled out and should be carried forward to a Stage 2 Appropriate Assessment. These sites are: • Rockabill to Dalkey Island SAC [003000]; • South Dublin Bay SAC [000210]; • Lambay Island SAC [000204]; • South Dublin Bay and River Tolka Estuary SPA [004024]; and • North Bull Island SPA [004006]. Annex F of the application documents contains the Applicant's NIS, which concludes that with the proposed mitigation in place the monitoring and site investigation activities, either alone or in-combination with other plans or projects will not adversely effect the integrity of any of these sites thus the sites inherent ecological value will not be affected.

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(See Professor Jane Stout, TCD, Dublin. https://www.tcd.ie/Botany/people/stoutj/) C. Estimate chart measurements of yearly speeds and durations of wind source, direction and power. D. Equate these costs with the output of 'green electricity' profits. E. Estimate of the band levels of customer consumption: domestic, manufacturing, farming, transport, technology (data centres). F. Define the recipients of this electric power. destinations, cost per kilowatt. G. Define the difference in costs of the installation of turbines, near shore, and further from shore: • installation into Killiney bay, 9 - 12 km • installation further from shore, 22 km H. Define the difference in costs between turbines installed on sandbanks and floating turbines. I. Define the cost estimate of: • manufactured parts of the turbines • installation of x number of turbines • maintenance and monitoring • repairs and replacements (blades) • removal of exhausted turbines J. Define predicted costs due to coastal erosion on Killiney Beach and Cliffs. K. Consider the effect of rapidly degrading natural capital in the context of the risks of corporate decision-making and financial markets. Take account of impacts on nature, society and the economy and its dependency on the availability of air, water, land, biodiversity, marine resources, the rule of law, and human capital. Conclusions	

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KBCC seeks an independent assessment of Government decisions which currently seem to be inclined to favour the development of multiple windfarms on marine sites which have not properly assessed for development. Although KBCC understand decisions made under the mandate of climate change, and 'clean energy', KBCC argues that sensitive sandbank ecosystems, which were marked as SAC and SPA in 2012 are now not protected. This is a "back to front", approach to development. Marine Protected Areas must be decided prior to, or at least, in tandem with government contracts for multiple marine acres for wind farm construction. KBCC notes at present, additional potential developments which adding RWE Dublin Array, ESB Sea Stacks and Rialta Na Mara, the area to be covered amounts to approximately 500km^2. This is the equivalent of 123,553 football fields. It is difficult to distinguish the intention of Government as separate from the aims of developers of wind farms. KBCC addresses the concept of 'project splitting' in which the proposed development activity straddles a stated aim, and yet, incorporates a decision already taken. KBCC believes that the information provided by RWE Renewables does not provide complete, precise and definitive information capable of removing all reasonable scientific doubt as to the effects of these investigations. The amount of drilling fluids is unspecified. The reinstatement of surfaces problematic. It is unclear if the threshold tolerance of a selected site will survive CPT's, microcore machinery, and borehole drilling, thus depriving the site of its inherent ecological value.	
Submission 10 **Private** The observer believes the application should be rejected for the following reasons: This site was selected by the original Developer decades ago without any assessment as to environmental suitability. It has now been granted the status of a "Relevant Project" and there still has never been any appropriate assessment as to its environmental suitability.	This application is solely for ecological monitoring and site investigation works, the latter required to inform the engineering and design of the offshore wind farm, the cable route(s) to shore and associated infrastructure. A wide range of issues related to the environmental assessment of the suitability of the site and the proposed development have been raised and these matters will be addressed in the future development consent application for the proposed development. The current Foreshore Licence area is larger than the two foreshore licences awarded in 2000 as it includes corridors in which export cables may potentially be routed and an area surrounding the

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The Foreshore Licenses for these projects appear to have been originally granted in 2000 and expired in 2005 without ever been validly renewed. The original proposed areas and turbines bear no relation to the current proposed sizes. Consequently, the current application has no validity. The site is chosen by foreign private developers on purely economic grounds as being cheap to develop, with all profits accruing to the private developer and none to the State -not even an undertaking of cheap electricity supply. No other European country would permit their environment to be vandalised by foreign interests in this manner. There has been no Marine Spatial Planning in place whatsoever prior to the selection of this proposed development site. The technology proposed for Dublin Array is totally outdated as one would expect for a site first selected decades ago. While Ireland is progressing with in this outmoded fashion, other nations are 5 to 6 years ahead in developing proven floating windfarm technology which can be located over the horizon, particularly on the West coast where the wind is strong and constant. The Kish Bank is directly in line of sight of one of the most beautiful natural amenities in the most populated area of the country – one that is extensively used for leisure and tourism. Again, no other country in Europe would consider using an equivalently located and aesthetic site for private windfarm development in this manner. Kish Bank has previously been identified by the National Parks and Wildlife Service (NPWS) as the richest example of marine biodiversity amongst Irish East coast sandbanks. In fact, the NPWS originally proposed the Kish Bank to be a protected area (SAC) before political interference forced them to retract. Currently there are proposals for windfarm development on sandbanks running along the whole Eastern Irish coastline form Wexford to Louth – it is simply not possible to effect cumulative development of this scale without destroying numerous habitats and utterly closing off migratory bird flight paths. Many of these proposals need to be dropped immediately as cumulatively they would be	proposed wind farm boundary for the purpose of ecological monitoring. In accordance with good practice, mobile ecological surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable precautionary monitoring across the wider receiving environment. The proposed windfarm will be the subject of a future development consent application under the Maritime Area Planning Act, 2021 as amended and the associated consent framework. In accordance with the Maritime Area Planning Act, 2021 as amended, a 'Relevant Project' will be required to obtain a Maritime Area Consent prior to submitting a development consent application. In the event of a Maritime Area Consent being awarded, Dublin Array will be subject to a significant levy during the development phase of the project. In the event of successfully securing development consent for the project it will also be subject to an annual operational phase levy. These levies are all payable to the Irish State. Subject to award of a MAC the proposed Dublin Array wind farm will still be required to apply for development consent to An Bord Pleanála similar to other strategic infrastructure projects developed (and under development). This development consent application will be subject to public consultation and independent environmental impact assessment by An Bord Pleanála under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process. The footprint of the proposed geotechnical survey of the Kish and Bray Banks will be very small, estimated to be less than 0.013% of the bank area. The fine sand and gravel sediments which cover the banks are highly mobile and regularly disturbed by natural processes. Any additional sediment disturbed by the works will fall out of suspension

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an ecological catastrophe with disastrous effects on the protection of habitats and very shoreline itself. In this context, the Kish Bank proposal should be one of the first to be dropped due to its rich biodiversity and amenity value. The investigation work proposed will inevitably damage the protected Rockabill to Dalkey SAC habitat and disturb species that rely on that habitat, particularly the porpoise population. The investigation work proposed will inevitably damage the sandbank habitat and disturb species that rely on that habitat. The investigation work proposed will inevitably damage the shore habitat and disturb species that rely on that habitat. The mitigation measures proposed are wholly ineffective in protecting fish, sea mammals and porpoise populations, particularly in the aspect of sonar disturbance. The works proposed are effectively to be executed in a wholly unregulated and unsupervised manner with no apparent independent mitigation measures and wholly biased conclusions. For all of the above reasons, the observer believes this application should be rejected in the public interest.	almost immediately. No significant effect on the potential Annex 1 habitat are therefore predicted. Physical disturbance to habitats and communities and any indirect localised displacement of prey (benthic and fish) will also be short term, temporary and over a negligible footprint, therefore no potential exists for significant effects to habitats or species, including marine mammals and seabirds which are features of Natura 2000 sites. The Applicant's NIS, Annex F of the Foreshore Licence Application concludes that sub-sea impacts on harbour porpoise and their prey would be short term, temporary and intermittent and the best practice mitigation measures in relation to geophysical acoustic surveys as specified in the DAHG Guidance (2014) or other updated guidance as agreed with NPWS, will be followed at all times, the potential for disturbance of harbour porpoise will be minimised and no impacts on the Conservation Objectives of the Rockabill to Dalkey SAC are predicted.
Submission 11 **Wild Defence Ireland** Repeat of Submission 8 above	See response to Submission 8
Submission 12 **Private** The observer wishes to note the following in relation to the Foreshore Licence Application, RWE are applying for authorisation to undertake a geotechnical and geophysical site investigation for the proposed Dublin Array, offshore wind farm development. This application is being considered despite the lack of a proper process for site selection.	The Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any, site preparation nor permanent installations. The designation of Marine Protected Areas is an active workstream being progressed by the State currently (gov.ie - Marine Protected Areas (www.gov.ie)). This process is outside of the control of the Applicant. The application documentation demonstrates that with the committed techniques proposed to be employed, the limited scale and temporal extent of the

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The observer wishes to note to the Department in regard to the proposed location of wind turbines at a distance of 9 km from Killiney Beach, that this area has not yet received the attention or, if confirmed, the identification of a Marine Protected Area. This cannot be deemed to be proper marine planning, whereby zoning of the near shore Irish sea for the purpose of mapping the ecology systems has not taken place before the assignment to developers of such nearshore, coastal sites in the Irish sea for the construction of multiple wind turbines. This lack of eco-system based planning enables the assignment of large portions of nearshore territory to developers, without reference to MPA'S. The Hartley Anderson Report, which is the basis of the justification for RWE's application for a Stage 2 Assessment, seems to be substantially the same Report which was offered considered in December, 2021. The imposition of site examination geotechnical and geophysical testing on the Kish and Bray sandbanks, by RWE/Dublin Array, is of particular concern. Hartley Anderson Limited (hereon in referred to as H & A report) Marine Environmental Science and Consultancy Screening for Appropriate Assessment RWE Renewables Ireland, Site Investigations for the proposed Dublin Array Offshore Wind Farm Report to Department of Housing, Local Government and Heritage – updated following RFI In general, statements and responses on the part of the H&A report to public and statutory body submissions lack complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. When inaccurate data or obfuscation in the Dublin Array Foreshore Licence NIS documentation has been challenged within a submission of a relevant expert (such as in the case of IWDG re acoustic testing and the harbour porpoise), the H & A report in response does not provide complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the adverse effects on cetaceans (protected Annex IV species) in particular the harbour porpoise of the proposed works. The observer found that the explanations and responses by the H & A report seemed to be aimed chiefly at deflecting or dismissing the legitimate concerns	proposed site investigations, they will not have any significant effects on the environment. The Appropriate Assessment Screening methodology as applied in Annex E, Report to Inform Appropriate Assessment Screening of the application documents, follows the source-pathway- receptor (S-P-R) approach which is a standard conceptual model used to characterise the means (pathways) via which effects arising from the proposed works could be experienced by receptors (sensitive qualifying interests of a European site). All three elements of the s-p-r framework must be present to conclude a potential effect-pathway. The approach taken is consistent with relevant Irish and EU guidance published to ensure compliance and transparency of both the process and findings. The Independent Environmental Consultant appointed by the Department of Housing, Local Government and Heritage concluded that, "Given the nature and scale of the proposed works, the possible effects, SPA/SAC site selection and feature screening is deemed appropriate, and an adequate level of information has been provided to justify the screening conclusions for the sources of effect which have been assessed." The grant of a foreshore licence which gives permission to undertake surveys and site investigations to inform the design of the wind farm or to collect data for monitoring purposes is made on terms which are expressly without prejudice to the subsequent mandatory development consent application to be made to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended and its associated consent framework. The site investigation works carried out at a preliminary stage of a project design are not inextricably linked to the construction and operation of the project itself, as the former can occur without the latter, therefore the development and operation of a wind farm is not a probable or likely consequence of granting a foreshore licence application for site investigations.

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and findings of NGOs and members of the public, rather than removing any scientific doubt as to the ability of the proposed exploratory works / site investigations to impact on the integrity of habitats and species populations in the area. As such, any foreshore licence and lease application process for Dublin Array investigative survey which seeks to rely on H & A's Screening for Appropriate Assessment prepared for the Department of Housing, Local Government and Heritage by Dublin Array, should be rejected. The observer would also emphasise that DHLGH has a duty of due diligence and objectivity to take overall careful note of the shortcomings and data gaps already evident in the proposed Kish and Bray banks site investigation licence/lease applications 2000 – 2022, and in this H & A report and any present in previous Dublin Array NIS screening documents. The observer also wishes to note to DHLGH that it is questionable how at this stage, the viability of the relevant project site and Dublin Array/RWE's wind farm proposal is still in existence, given that in 2006 / 09 the Marine Licence Vetting Committee rejected a lease application submitted to them by the then Kish and Bray consortium on the basis that no alternative sites were proposed and because of gaps in the data / information provided to the MLVC for consideration by the developer in question. The observer also draws the developer and department's attention to the reach of Article 12.1. (d) of the Habitats Directive, which is clear: Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (a) in their natural range, prohibiting: (d) deterioration or destruction of breeding sites or resting places. The H & A report for the DHLGH perpetuates the deficit in the previous developer's reports of complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works, in particular effects that can result in the deterioration or destruction of breeding sites or resting places of the harbour porpoise, dolphin, seal (and angel shark and tope which the Dublin Array NIS screening document does not mention) in surrounding SACs and SPAs.	The proposed windfarm will be the subject of an application for development consent in due course under the Maritime Area Planning Act, 2021 as amended, and its associated consent framework. An assessment of the alternatives and reasons for site selection will be provided as part of the application documentation. The application will also be accompanied by a Natura Impact Statement which will assess the impact of the proposed development on Natura 2000 sites and European Protected Species which have the potential to be affected by the proposed development. The potential effects on features of the Natura 2000 Sites located within the zone of influence of the proposed activities due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites have been considered in the Screening Assessment presented in Annex E. The area of direct habitat disturbance i.e. the footprint of the proposed activities, 0.004km^2. Temporary, localised increases in suspended sediment will result from some of the proposed activities, but will drop out of suspension rapidly and the effect will be negligible in the context of the highly dynamic baseline environment. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are therefore predicted. This Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any, site preparation nor permanent installations. The proposed windfarm will in due course be the subject of further consultation through the development consent process under Maritime Area Planning Act, 2021 as amended, and the associated consent framework. The development consent application for the proposed wind farm will be subject to independent environmental impact assessment by An Bord Pleanála under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process.

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The effects of the future large scale industrial nearshore wind project - which this stage 2 AA process seeks to underpin - will also likely precipitate a habitat-specific marine biodiversity crisis in the surrounding marine and coastal area with ecosystem decline in and around the Kish and Bray sandbanks, which is particularly concerning given that these banks, with their documented range of qualifying features for submerged sandbanks - 1110 habitat, were proposed as an SAC until 2013 when they were removed from the list of sandbanks for consideration, an issue that raises questions as to why this came about. See the IWT piece on this matter: https://iwt.ie/dodgy-dealings-under-thesea/#:~:text=Sandbanks%20are%20an%20important%20habitat,predominantly%20surrounded%20by%20deeper%20water. The inappropriateness of developer-led site selection for a large scale wind farm on the Kish and Bray banks, 10 km from shore, in an area vital for sensitive coastal and marine habitats and species, has not been properly addressed by the relevant authorities, or in this H & A report, or sufficiently by the body tasked with protecting and monitoring marine habitats – the NPWS. Given this critical issue, it is not surprising that the H & A report for the Department of Housing, Local Government and Heritage fails in my opinion to present complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the likely significant effects (LSEs) on the habitat integrity and ecological functionality critical to benthic communities, marine food webs and protected species in the survey area and species that rely on the Kish and Bray sandbanks and surrounding integral marine habitats, including surrounding SACs and SPAs, sandbanks for the purposes of spawning, foraging, breeding, resting. Of most concern under the provisions of the EU habitat and birds directives is that the observer finds that the H & A report does not provide complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the likelihood of the proposed exploratory works role in the precipitation of population decline in both the harbour porpoise and other internationally important and threatened bird species.	The designation of Natura 2000 sites in Ireland is a matter for the Irish State. The Applicant has not engaged with any Government Agency or Department concerning the designation of sites. As stated in Annex E, Report to Inform Appropriate Assessment Screening no significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are predicted due to the scale, duration and nature of the proposed works. The Stage 2 Appropriate Assessment has yet to be undertaken. An Independent Environmental Consultant (IEC), appointed by the Department of Housing, Local Government and Heritage, have undertaken a Screening for Appropriate Assessment (AA) (stage 1 screening for the likelihood of significant effects on Natura 2000 sites), which agrees with the conclusions of the Report to Inform Appropriate Assessment Screening, Annex E of the application documents, A precautionary approach to identifying Natura 2000 sites within the geographical zone of influence of the proposed works was taken and a significant number of these sites were subsequently screened out on the basis that likely significant effects will not occur as not all of the three required elements, source, pathway and receptor are present. Please refer to Section 3.8 of the IECs report. Likely significant effects on the qualifying interests and sites presented in the Image below could not be ruled out at Screening stage.

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H & A's Screening for Appropriate Assessment prepared for the DHLGH does not provide enough proper scientific objectivity in that the report presents data gaps, uses over-generalisations on the basis of unclear data to attempt to deflect concerns, or simply refuses or fails to address legitimate concerns as to errors in the Dublin Array NIS screening documents on the basis of precise and definitive findings and conclusions capable of removing all reasonable scientific doubt. To emphasise this concern - the H & A's Screening for AA takes no account of a baseline expert bird study presented to the then deciding authority in 2001 that clearly found that the sandbanks in question should be designated as an SPA on the basis of the presence of the roseate tern alone – let alone other internationally important bird species found there. Why would the H & A's Screening document neglect to reference the findings of such a report, which was commissioned by the Dublin Array developer/ foreshore licence applicant and submitted to the deciding authority? To my mind this raises a concern as to the question of a potential leaning in favour of the proposed exploratory works in the case where any AA report appears to aim at dismissing or neglecting to refer to previous expert and objective findings on birds and the site of the original foreshore licence application. These important findings in this case are in a 2001 report to the department from the developer which clearly state that no exploratory works or turbine construction should take place in the vicinity or on the site of Kish and Bray banks and are as follows, highlighted for emphasis: "Kish Bank Proposed Offshore Wind Farm Progress Report No. 2 on Seabird Surveys Sept 2001- Sept 2002 12" By Dr Steve Percival Eugene Archer, and Peter Cranswick Contractor: Kish Bank Consortium "The other potential impact highlighted in the preliminary report was the possible displacement of foraging seabirds from the Kish Bank by the presence of the wind farm. This was identified as a potentially significant impact for rather more species of national importance. As stated in that report, shallower sea areas such as the Kish Bank are relatively scarce in this region, the Kish itself constitutes quite a large proportion of the available resource. Therefore any	<table><tr><th>Site</th><th>Qualifying interests</th><th>Direct Disturbance on habitats</th><th>Underwater noise</th><th>Increased vessel traffic</th></tr><tr><td>Rockabill to Dalkey Island SAC</td><td>Reefs</td><td>Screened in</td><td>-</td><td>Screened in</td></tr><tr><td>Rockabill to Dalkey Island SAC</td><td>Harbour porpoise</td><td>Screened in</td><td>Screened in</td><td>-</td></tr><tr><td>South Dublin Bay SAC</td><td>Mudflats and sandflats not covered by seawater at low tide, Salicornia and other annuals colonising mud and sand, Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), Mediterranean salt meadows (*Juncetalia Maritime*)</td><td>Screened in</td><td>-</td><td>-</td></tr><tr><th>Site</th><th>Qualifying interests</th><th>Direct Disturbance on habitats</th><th>Underwater noise</th><th>Increased vessel traffic</th></tr><tr><td>Lambay Island</td><td>Grey seal, harbour seal</td><td>-</td><td>Screened in</td><td>-</td></tr><tr><td>North Bull Island SPA</td><td>Light-bellied brent goose, shelduck, teal, pintail, bar-tailed godwit, curlew, redshank, turnstone, black-headed gull, dunlin, black-tailed godwit sanderling, shoveler, oystercatcher, golden plover, grey plover, knot</td><td>Screened in</td><td>Screened in</td><td>Screened in</td></tr><tr><td>South Dublin Bay and River Tolka Estuary SPA</td><td>Light-bellied brent goose oystercatcher, ringed plover, grey plover, dunlin, arctic tern, bar-tailed, godwit redshank, knot, black-headed, gull, roseate tern, common tern, sanderling</td><td>Screened in</td><td>Screened in</td><td>Screened in</td></tr></table> This consultation and the Appropriate Assessment screening process to which it relates is for permission to conduct monitoring surveys and site investigations. A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended and the associated consent framework. A detailed assessment of the potential impact upon bird species, from the project alone and in-combination with other projects, using up to date modelling and assessment methods and informed by monitoring data from operational wind farm sites will be undertaken and will form part of the development consent documentation. In the 2000s offshore wind development globally was in its infancy (the first offshore wind farms of 200MW or more were not commissioned until 2009). Over the past 20 years monitoring data from

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effective loss of habitat would be more likely to result in significant ecological consequences, such as reduced breeding success and increased mortality. Alternative feeding areas with similar characteristics may well be limited. Similarly for birds outside the breeding season, loss of feeding resources could be significant. Again, if a disturbance effect occurs, its ecological consequence would be dependent on the availability of alternative feeding areas. If such alternative areas were not available and then birds were unable to reach adequate body condition before migration, this could result, for example, in increased mortality rates. The main problem still lies in the lack of information about how these species would be affected by the presence of a wind farm (Percival 2001a). However, given the importance of the area, a precautionary approach would need to be taken. This is particularly the case when the conservation status of the populations using the Kish Bank is considered. The Bank itself has sufficient conservation value to qualify for SPA status, solely on the grounds of the roseate tern numbers that use it. This is not, however, the only SPA issue, as many of the seabird populations using the Kish are very likely to be from designated SPAs nearby. This includes all of the following: • Rockabill Island - breeding roseate and common tern. • Skerries Islands - breeding shag and cormorant • Lambay Island - breeding Manx shearwater, shag, guillemot, razorbill, fulmar, cormorant, kittiwake. • Ireland's Eye - breeding gannet, cormorant, kittiwake, guillemot and razorbill. • North Bull Island Dollymount - breeding common tern, passage roseate and other terns. • Howth Head - breeding kittiwake and razorbill. • Sandymount Strand / Tolka Estuary - breeding common tern, passage roseate and other terns. • Wicklow Head - breeding kittiwake, razorbill, guillemot, fulmar and shag. Kish Bank Proposed Offshore Wind Farm Ecology Consulting Seabird Surveys: Sep 01-Sep 02 December 2002 Progress Report No. 2	operational wind farm sites has been collected which continues to add to the body of knowledge and understanding of impacts associated with the construction and operation of these facilities. The points raised by the correspondent are in relation to the proposed wind farm, which will be subject to a future application for development consent under the Maritime Area Planning Act, 2021 as amended, and the associated consent framework. The matters raised in this submission are related to the actions of the State rather than the Applicant. It is a matter for the State to identify and designate Natura 2000 sites (SACs and SPAs). The Kish Bank is not designated as an SAC or SPA. Nevertheless the proposed techniques and measures intended to be employed as part of the site investigation and environmental monitoring proposed have been selected to ensure that environmental effects from the proposed activities are not significant. Please refer to the screening assessment conclusions for this site presented in Table 15 of Annex E, Report to Inform Appropriate Assessment. Likely significant effects on the Qualifying Interests of the Murrough SPA are screened out as the site is 8 km from the boundary of the geophysical and geotechnical survey area, i.e. the potential source of underwater noise associated with the proposed works. The works which are proposed within the vicinity of the SPA are limited to ecological surveys only, The proposed surveys include one subtidal benthic ecology and one potting survey up to four trawl surveys a year for up to three years. The sampling locations will be spread across the extent of the Foreshore Licence area. The vessel movements associated with these activities in any particular area of the sea are therefore minimal and intermittent and therefore there are no likely significant effects on the qualifying interests of the Murrough SPA as a result of vessel traffic. The area of seabed that will be disturbed by the ecological survey are very small (grab sampling will be conducted using a 0.1 to 0.2 m^2 Hamon or Van Veen grab, Epibenthic sampling will be undertaken using a standard 2 m CEFAS beam trawl fitted with

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If birds feeding on the Kish and breeding/on passage at any of these other SPAs were affected, it is possible that the overall SPA populations of these species could be reduced. With the current lack of knowledge about how seabirds are affected by wind farm developments it can be concluded at this stage that as far as the most sensitive bird issue on the site is concerned, roseate tern, it would be inappropriate to construct a wind farm within its main area of use (i.e. in the northern half of the Bank). It would not be possible to be sure that significant impacts would not occur, and hence the only current solution would be to locate the wind farm outside the area used by this species. In terms of the nationally important species, there are potentially significant issues with regard to the impacts on the Kish populations themselves and also in terms of possible impacts on neighbouring SPAs for a range of species, particularly including Manx shearwater, shag, kittiwakes, common terns, guillemots and razorbills." (110506_7c6ec79b-e118-4726-bbff-2366030383fb.pdf) In fact, elsewhere these concerns as to effects of all stages of offshore renewable energy projects are cited by the government's own authority – the NPWS - as one of the main pressures on seabirds in Ireland: " Renewable Energy As a pressure, no seabird species was assessed as a medium or high for the pressure/threat known as Wind, wave and tidal power, including infrastructure (Code D01). However as a threat is was the most frequently assigned one across the suite of Irish breeding seabirds. This assessment was primarily informed by the report Feasibility study of Marine Birds Sensitivity Mapping for Offshore Marine Renewable Energy Developments in Ireland (Ramiro & Cummins 2016). Although tidal and wave technologies were considered in the report, this assessment focuses on the potential impact of offshore windfarms on Ireland's seabirds primarily on account of planned future offshore wind farm development, which is considered to be relatively much more advanced and specifically in the Irish Sea (see www.seai.ie for further information). The main risks of offshore wind farms to seabirds have been	a 5 mm cod end designed to collect information on epibenthic invertebrate species, as well as small demersal and juvenile fish. Trawls will be standardised by length (500 m) or duration (10 minutes). Indirect effects on prey species will not result in likely significant effects on the qualifying species. The IEC has considered likely significant effects on black-headed gull, which is listed as a qualifying interest of the site in the IECs report p123. Please refer to the screening assessment conclusions for this site presented in Table 15 of Annex E, Report to Inform Appropriate Assessment. Likely significant effects on the Qualifying Interests of the Howth Head SPA are screened out as they are 6.2km from the boundary of the geophysical and geotechnical survey area, which are the potential source of underwater noise. The works which are proposed within the vicinity of the SPA are limited to ecological surveys only and as described above no significant effects on kittiwake, which are the qualifying interest of Howth Head SPA are likely given the nature and scale of the proposed ecological sampling. Please refer to the screening assessment conclusions for this site presented in Table 15 of Annex E, Report to Inform Appropriate Assessment. No impacts on the qualifying interests of Dalkey Island SPA are predicted due to the limited nature of the works in terms of both spatial and temporal extent. All geophysical and geotechnical operations will be a minimum of 0.9 km from the SPA boundary in an area that has existing regular levels of vessel traffic. Any disturbance impacts or effects upon supporting habitats for the qualifying interest species that result from the proposed works would be negligible; therefore no potential for likely significant effect are predicted. Please refer to the screening assessment conclusions for this site presented in Table 15 of Annex E, Report to Inform Appropriate Assessment. Ireland's Eye SPA lies outside of the Foreshore License

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identified as: collision mortality, disturbance, barrier effects and habitat loss or displacement (Desholm & Kahlert, 2005, Fox et al., 2006, Langston & Pullan, 2003). Therefore tables five and six of the Ramiro and Cummins' (2016) report, which relate to the various seabirds' ranked sensitivity scores to wind farm collision and displacement/disturbance scores respectively, led to defining the magnitude of this threat at a species specific level in this report. Twenty-two seabird species were classed as medium or higher for this threat. This level of threat is justified on the grounds that there are several offshore windfarm projects which are currently at various stages along the consent process and thus, such cumulative pressures acting on seabirds will need to be assessed. Ireland's marine SPA network is not yet finalised. Therefore the ex-situ aspects of appropriate assessments of potential impacts are of particular importance." (Https://www.npws.ie/sites/default/files/publications/pdf/IWM114.pdf) In relation to the above, a report by the Environmental Protection Agency verified that the Kish sandbanks were legitimately being considered for designation (up to 2013) as an SAC or SPA: "The Kish Bank is currently not designated as an SAC or SPA, ***however it is understood that NPWS intend to propose the Kish Bank as an SAC under the Habitats Directive (and possibly as an SPA under the Birds Directive) as sandbanks are Annex I habitats under the EU Habitats Directive***. The location of this potential SAC/SPA can also be seen in Figure 2.1 (please note that the exact boundaries of the potential SAC/SPA are unknown at present and the boundary shown in Figure 2.1 is based on bathymetric features and included for reference only)." (https://epawebapp.epa.ie/licences/lic_eDMS/090151b28046d5fd.pdf) The designation as an SAC or SPA of the Kish sandbanks - the site that is the subject of the H & A report to the DHLGH - would have led, among other things, to a much stricter standard of protection for the sandbanks, and would probably have excluded further exploratory works or site investigations for the purpose of furthering the construction of a large scale, nearshore wind farm. Similar sites have been found to qualify for SPA designation where, as noted by the EU in a case involving Ireland's failure to designate SPAs "It is sufficient that the area in question hosts a significant number of individuals of such a species or	area. No impacts on the qualifying interest of this SPA are foreseen due to the limited nature of the works in terms of both spatial and temporal extent. All geophysical and geotechnical operations will be a minimum of 9.0 km from the SPA boundary in an area that has existing regular levels of vessel traffic. Any disturbance impacts or effects upon supporting habitats for the qualifying interest species that result from the proposed works would be negligible; therefore no potential for likely significant effect are predicted. The IECs report correctly lists the qualifying interests of Ireland's Eye SPA as cormorant, herring gull, kittiwake, guillemot and razorbill, and these features have been assessed, IECs report p123. Please refer to the screening assessment conclusions for this site presented in Table 15 of Annex E, Report to Inform Appropriate Assessment. Lambay Island SPA lies outside of the Foreshore License area. No impacts on the qualifying interest of this SPA are foreseen due to the limited nature of the works in terms of both spatial and temporal extent. All geophysical and geotechnical operations will be a minimum of 18.2 km from the SPA boundary in an area that has existing regular levels of vessel traffic. Any disturbance impacts or effects upon supporting habitats for the qualifying interest species that result from the proposed works would be negligible; therefore no potential for likely significant effect are predicted. Please refer to the screening assessment conclusions for this site presented in Table 15 of Annex E, Report to Inform Appropriate Assessment. Wicklow Head SPA lies outside of the Foreshore License area. No impacts on the qualifying interest of this SPA are foreseen due to the limited nature of the works in terms of both spatial and temporal extent. All geophysical and geotechnical operations will be a minimum of 18.2 km from the SPA boundary in an area that has existing regular levels of vessel traffic. Any disturbance impacts or effects upon supporting habitats for the qualifying interest species that result from the proposed works would be negligible; therefore no potential for likely significant effect are predicted.

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subspecies (at least 1% of the national breeding population of a species referred to in Annex I or 0.1% of the biogeographical population) in order for it to have to be classified as an SPA. ” The EU further underlined that in the case of Ireland, “After pointing out that SPA boundaries should be defined by ornithological considerations and not economic ones, the Commission notes that the Irish authorities, by contrast, have in many cases limited SPAs to sites in public ownership and have not classified sites seriously contested by economic interests.” (https://curia.europa.eu/juris/document/document.jsf?docid=71717&doclang=en) These points above, raised at the highest level of the EU in relation to Ireland's failure to designate SPAs, brings the observer to their main point which relates to shortcomings in the H & A report for the DHLGH. The observer has found data gaps and omissions in relation to protected bird species and Special Areas of Protection which are affected by the current licence foreshore application under consideration. These gaps and inaccuracies further undermine the report's ability to present complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the potential for LSEs on SPAs and protected bird species. In the H & A tables (pp 119 – 129) for Sites screened for likely significant effects the observer finds there is a failure to correctly and adequately assess likely effects of exploratory works on bird species for the purposes of establishing beyond scientific doubt that the following species will not be subjected to: **Direct Disturbance, Increased Vessel Traffic and Underwater Noise**: Protected bird species in Hartley & Andersen report to DHLGH that are either mistakenly **omitted** or **miscategorised** as **not being affected by** Direct Disturbance, Increased Vessel Traffic and Underwater Noise from proposed exploratory works/site investigation: 1) The Murrough SPA: listed in report **as not affected**: Red-throated Diver (on the AMBER LIST – breeding and wintering), Herring gull, Little Tern – the foraging, breeding and resting grounds of these species will be affected – see reference to Developers own 2001 baseline report.	The IECs report correctly lists the qualifying interests of Wicklow Head SPA. Please refer to the screening assessment conclusions for this site presented in Table 15 of Annex E, Report to Inform Appropriate Assessment. Rockabill Island SPA lies outside of the Foreshore License area. No impacts on the qualifying interest of this SPA are foreseen due to the limited nature of the works in terms of both spatial and temporal extent. All geophysical and geotechnical operations will be a minimum of 26.2 km from the SPA boundary in an area that has existing regular levels of vessel traffic. Any disturbance impacts or effects upon supporting habitats for the qualifying interest species that result from the proposed works would be negligible; therefore no potential for likely significant effect are predicted. The IECs report correctly lists and assesses the qualifying interests of Wicklow Head SPA. The NPWS Conservation objectives supporting document - Marine Habitats and Species for the Rockabill to Dalkey SAC, v1 2013 confirms that Target 1, of the conservation objective for harbour porpoise as features of the Rockabill to Dalkey SAC is relevant to proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range. The Applicant provided responses to a number of points reproduced here by the correspondent in the FS007188 Applicant's Response to Public Submissions, dated 22 March 2022, sub-section, The Applicant's Response to Public Submission 11, specifically pages 38 and 45.

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Species OMITTED from Murrough SPA **that will likely suffer LSEs**: **Black headed Gull** – This **SPECIES IS ON RED CONSERVATION STATUS LIST**. 2) Howth head Coast SPA: Kittiwake, incorrectly listed in report **as not affected**. NPWS report states that Kittiwake depend primarily on sand eels which thrive **only** in and around the area of sandbanks targeted by applicant for prolonged periods of drilling, seismic and acoustic testing/ works – works and testing which will inevitably negatively impact on the marine food web availability in and around sandbanks. *"While some seabirds are able to adapt to fluctuations in food availability (Montevechhi & Myers, 1996), several studies have shown that seabird survival, breeding success and chick growth are closely correlated to food availability (Furness & Tasker, 2000, Barret et al., 2007, BirdLife International, 2008). During the breeding season, seabirds are effectively 'tied' to their breeding colonies meaning that local fluctuations in fish recruitment and availability can have a pronounced effect on the reproductive output for some species. In the worst case scenario, if prey levels are reduced below the level needed to generate and incubate eggs, or if the fish species and prey sizes needed to feed chicks are unavailable, then fewer or no young are fledged due to starvation or depredation or indeed, seabirds fail to reproduce at all if the shortfall occurs early in the season."* **The Kittiwake is Red-list species (high conservation concern**). Protected bird Species **OMITTED IN REPORT** from Howth head SPA **that will likely suffer LSEs** (foraging, breeding, resting): • Razorbill (Near threatened status, protected - https://eunis.eea.europa.eu/species/854); • Fulmar (Threatened and Endangered status - Wintering habitats open ocean); • Guillemot: threat status Europe: Near Threatened (IUCN); – all of these species are liable to access the proposed site area of Kish and Bray banks and surrounding exploratory site area for breeding, resting foraging, and postfledgling (nursery) purposes. 3) Dalkey Islands: Roseate Tern, Common Tern, Arctic Tern: all of these species are categorised by H&A report as NOT liable to LSEs from proposed exploratory works. **This is incorrect according to EUNIS, Birdwatch Ireland data and**	As detailed in Section 7.4 of the Report to Inform Appropriate Assessment a search of publicly available information was undertaken to identify other plans and projects which may result in adverse effects on the integrity of any Natura 2000 sites in combination with the site investigation and monitoring activities proposed under this Licence application. Sources included the Department of Housing, Local Government and Heritage Foreshore Licence application database and the Environmental Protection Agency Dumping at Sea Register. The search was undertaken for all projects within a 30 km radius of the proposed survey area. Given the localised and temporary nature of the proposed survey works this was considered precautionary. The projects considered include those applications submitted but not yet determined and existing licences which have been granted but the associated activities not yet completed. The Minister has access to the plans and projects of relevance to the incombination assessment of this application to inform his Stage 2 Appropriate Assessment, including applications such as FS007134, ESB Wind Development Limited, Site Investigations at Sea Stacks Offshore Wind off Dublin and Wicklow, which have been submitted since the FS007188 application was submitted.

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NPWS data. "Post-breeding (late July-September) even larger concentrations of birds occur in Dublin Bay and the nearby sandbanks (e.g. Kish Bank) attracting terns, not only from local colonies, but from further afield in Ireland (e.g. Lady's Island Lake in Wexford) and overseas (North Sea, Baltic Sea) (79) (80) with recent counts indicating up 4,000 terns feeding in the Bay immediately post-breeding (5 species including Black Tern, Roseate Tern, Common Tern, Arctic Tern & Sandwich Tern) feeding in the bay post breeding (76). The concentration of terns, particularly on the Kish Bank, is likely due to a supply of forage fish such as sandeels and sprats in late summer (79). While the main east coast tern colonies are in Special Protection Areas (SPAs), in the Irish Sea, there is little data on available prey species sandeels and sprats, which terns depend on for chick provisioning (74). If these resources become limited, then ultimately the long-term viability of these colonies will be tested." (https://birdwatchireland.ie/app/uploads/2019/04/BirdWatch-Ireland-2016-Life-on-the-Edge.pdf). These protected species use the Kish and Bray banks as primary foraging, breeding, post-fledgling and resting grounds. **The Roseate Tern presence alone, according to a baseline expert report commissioned by the developer in 2001 and referred to the deciding authority for attention in decision making process stated that the extensive use of the site by this species would ensure that the Kish and Bray banks qualify as an SPA** – but this designation has never happened. Tern breeding is re-establishing itself on Dalkey Island and Maiden Rock is now hosting an offshoot colony of roseate terns for the first time in years which rely on sandeel foraging from the undisturbed banks of the site application. **How is it that the H & A report fails to include this critical data and the following?:** "This site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: **Roseate Tern, Common Tern and Arctic Tern. Dalkey Islands SPA is both a breeding and a staging site for Sterna terns. The site, along with other parts of south Dublin Bay, is used by the three tern species as a major post-breeding/pre-migration autumn roost area. The site is linked to another important post-breeding/pre-migration autumn tern roost area in Dublin Bay**. Birds are present from about late-July to September, with c. 2,000 terns, comprising individuals of all three species, recorded in 1998. The origin of the birds is likely to be the Dublin breeding sites (Rockabill and Dublin Docks) though the numbers recorded suggests that birds from other sites, perhaps outside the	

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State, are also present. **The site also has breeding Great Black-backed Gull (7 pairs in 2001), Shelduck (1-2 pairs) and Oystercatcher (1-2 pairs). Herring Gull bred in large numbers in the past but is now very scarce (14 pairs recorded in 1999)**. Dalkey Islands SPA is of particular importance as a post-breeding/pre-migration autumn roost area for Roseate Tern, Common Tern and Arctic Tern. **The recent nesting by Roseate Tern is highly significant. All three tern species using the site are listed on Annex I of the E.U. Birds Directive**." https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004172.pdf Another omitted species from this SPA is the Sandwich tern which are also present on site: "Sandwich Tern The largest tern with a small crest and black bill, tipped yellow. There are large colonies in Down and Wexford but non-breeding birds are widespread in the Irish Sea throughout the summer. Such birds regularly visit Dublin Bay and plunge-dive for fish around Dalkey" 4) Ireland's Eye Cormorant Herring Gull Kittiwake Guillemot Razorbill - these species are categorised by H&A report as not liable to LSEs from proposed exploratory works**. This is incorrect according to EUNIS, Birdwatch Ireland data and NPWS data. H & A report – Omission of Protected Species whose foraging grounds will be affected by proposed exploratory works**: Fulmar, Shag, Puffin, Northern Gannet,(https://www.rsgyc.ie/wp-content/uploads/2016/11/Inspectors- Report.pdf) **Northern Gannet**: whose predicted foraging range is 47 km (maximum 159 km). **Atlantic Puffin**: "there is a scattering of smaller colonies at east-coast sites, including Ireland's Eye and Lambay Island. Atlantic Puffins are known to switch from feeding on mainly fish during the breeding season and post breeding periods to zooplankton over the remaining winter period (Nov- Jan) (41). Atlantic Puffins more generalised feeding strategy of switching between prey types allows them to cope with fluctuations in forage fish during breeding (88). **Sprat and sandeels** [present mainly on Kish and Burford sandbanks within proposed site exploration area] are key prey items for Puffins. Changes in availability of these forage fish due to fishing down the food webs in North- Western Europe, which holds the majority of the global population, has had negative implications for overall numbers of Atlantic Puffins in the biogeographic region". (https://birdwatchireland.ie/app/uploads/2019/04/BirdWatch-Ireland-2016-Life-on-the-Edge.pdf)	

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The Atlantic Puffin is **Red Listed as of high conservation value**: "Species Biology, Diet: Being a marine species, the Puffins diet consists of various marine life such as fish and crustaceans. A favoured food item among the Puffins are sandeels. Habitat: This species is highly associated with marine habitats and will be found on suitable coasts and islands. Reproduction: During the breeding season, a single egg is laid and both parents will take turns incubating the egg for a period of 36-45 days. This egg will weigh approximately 64 grams. **The fledging period can take anywhere from 34 to 60 days**. An average wild Puffin can live for 18-20 years and will reach breeding age at five years." https://species.biodiversityireland.ie/profile.php?taxonId=10029 5) Lambay Island Fulmar, Kittiwake, Puffin, Cormorant, Lesser black backed gull Guillemot, Shag, Herring gull, Razorbill are all listed as species that will not suffer LSEs from proposed exploratory works. **This is not correct**. These species have a wide foraging range. Lambay Island is 25 km from exploration area and it is likely that these protected or threatened species will suffer disturbance from exploratory activities within their wider foraging area, in particular in relation to their chief food source found on the sandbank site at the centre of the site delineated for exploratory works : sand eels. 6) Wicklow Head SPA H & A report listed species Kittiwake - incorrectly listed as not prone to LSEs from exploratory works. H & A **OMITTED species** which are QI species for this SPA and likely to suffer LSEs from exploratory works: Razorbill: Threat status Europe Near Threatened (IUCN); **Fulmar: (Threat status Europe Endangered (IUCN), EU Population status: Threatened, Protected by: EU Birds Directive and 1 other international agreement);** **Guillemot: Threat status Europe: Near Threatened (IUCN).** 7) Rockabill Island SPA and Rockabill to Dalkey Island SAC Purple sandpiper, **Arctic tern Roseate tern**: This is one of the most striking mis-categorisations in the H & A report of a protected species which will be affected by Direct Disturbance, Increased Vessel Traffic and Underwater Noise from proposed exploratory works/site investigation but is listed in the tables as not being affected. Rockabill Isalnd SPA is widely recognised an internationally important breeding site and staging post for the roseate tern and the colony is well	

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documented by Bird Watch Ireland and Bird Life International, as being critically dependant on the Kish and Bray banks, for breeding, foraging (sand eels), resting and post-fledgling activity. The Arctic Terns from Rockabill are also present in and around the proposed site area for the same purposes. **Omitted protected species** – The Kittiwake (**Threat status Europe: Vulnerable RED LIST** (IUCN); EU Population status: Threatened; Protected by EU Birds Directive and 4 other international agreements; Breeding habitats sparsely vegetated land, Wintering habitats coastal open ocean shelf; Natura 2000 species code: A188.) The Developer/ Applicant/ Deciding Authority also neglects to assess cumulative impacts of Codling Wind farm surveys and ESB SeaStacks investigative surveys (among others in the pipeline) which will inevitably lead to likely significant effects on protected bird species that depend upon the surrounding coastal habitat and Kish and Bray sandbanks for survival. Regardless of cumulative effects, the following species are in fact likely to suffer habitat deterioration or fragmentation, disturbance, avoidance resulting in a consequent loss of foraging, breeding and resting sites which will seriously impact on these species populations, undermining their status and resulting in the deterioration of their habitat. This would then be in contravention of the Habitats and Birds Directives whereby repeated geotechnical and geophysical surveys (drilling, seismic testing etc) are allowed to take place over 5 years, in particularly affecting bird species prevalent and breeding in the summer months when the bulk of investigative works are scheduled to take place. This will result in deterioration of ecological functionality for these SPA / SAC protected areas and will adversely affect favourable conservation status resulting in species decline. For example "the site objectives of Rockabill to Dalkey Island SAC relate to temporary or permanent barriers. The site objectives to the Rockabill to Dalkey Island SAC, available here say "Species range within the site should not be restricted by artificial barriers to site use". To compound insufficient or patchy data on protected bird species there are still present in the H & A report there remains Insufficient Evidence or Mitigation Measures. To quote from another submission contained in the report: "*There is insufficient evidence that the proposed works, individually, or in combination with other plans or projects, is unlikely to have a significant effect on*	

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any European Site/s subject to specific mitigation measures. AA screening information in relation to matters including the bird species studied, the impact of underwater noise on bird species, a lack of clarity in relation to the proximity criteria and zone of influence used in screening sites and a failure to present evidence to support conclusions in relation to in combination effects. *Likely significant effects in combination with other plans or projects were not assessed, including combined effects of past investigations in the area.* *The license application indicate that 'The exact locations will be determined prior to undertaking the site investigation works' however, no detailed grounds on which these determinations will be made has been outlined, therefore no appropriate determination can be made on whether this will adversely affect the integrity of local sites.* *The license application states that in carrying out intertidal works at South Dublin Bay and River Tolka Estuary SPA that "an ecologist will be employed to ensure that disturbance is minimised". Not alone is this an admission of disturbance but it represents a likely significant risk that is not clearly defined at the licensing stage and it is left to the developer (or developer employed ecologist) to decide what constitutes damage to site integrity.* *The license states that: "If roosting birds are present on the shore during intertidal works, the nearby sample stations will be postponed until the birds depart, without provocation." It is not clearly defined, at what stage resumption of work will proceed, e.g. after the roosting birds have departed, after the chicks have departed. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive')."* This failure to correctly assess LSEs on cetaceans and bird species and these data gaps effectively remove a lot of the validity of the Hartley Anderson report's overall data and conclusions. Again this data failure goes to the heart of the matter: the pre-existing knowledge of the unsuitability of the site as flagged in written reports by professional and prestigious bird protection groups to the	

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government and department at the outset of this foreshore application process for the Kish and Bray which were and continue to be ignored. The department, in spite of critical findings in an MLVC report at foreshore lease application stage, has refused to oblige or direct the developer to consider other sites as part of the application process, even though it is within its power to do so. All likely sources of effects arising from the plan or project under consideration should be considered together with other sources of effects in the existing environment and any other effects likely to arise from proposed or permitted plans or projects. These include ex situ as well as in situ plans or projects. The report does not clearly state what in combination plans and projects have been considered in making the determination in relation to in combination effects. Simply re-stating that "there are no cumulative impacts" or that the works will only be "exploratory in nature" is insufficient. Therefore, in spite of the findings of the H & A report for DHLGH there are Remaining Risks and Lack of Robust Scientific Data and Granting of this license on the basis of this report would likely contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive') by failing to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works.	
Submission 13 **Private** Further to the invitation for Public Submissions for Purposes of Conducting Stage 2 Appropriate Assessment the observer wishes to make the following submission. The observer strongly object to the granting of a Foreshore Licence to undertake geotechnical and geophysical site investigations and ecological, wind, wave and current monitoring to provide further data to refine wind farm design, cable routing, landfall design and associated installation methodologies for the proposed Dublin Array offshore wind farm. On 29/7/2022 it is reported that Minister Ryan, reflecting on the recently announced emissions targets, has vowed "*I have every faith that we will, together, reduce our overall economy-wide carbon emissions, year by year".*	The proposed windfarm will be the subject of an application for development consent in due course under the Maritime Area Planning Act, 2021 as amended, and its associated consent framework. An assessment of the alternatives and reasons for site selection will be provided as part of the application documentation. **Flawed Marine Planning** The Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any site preparation nor permanent installations. In accordance with the Maritime Area Planning Act, 2021 as amended, a 'Relevant Project' will be required to obtain a Maritime Area Consent prior to submitting a development consent application to An Bord Pleanála. This development consent application will be subject to independent environmental impact assessment by An Bord Pleanála under inter alia

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This is absolutely crucial but just as crucial as the need to reduce carbon emissions is the need to protect the greatest natural carbon sink we have". Efforts to decarbonise must also focus on protection of what is working for us. The sea is an absolutely crucial carbon sink. A damaged marine environment will not function effectively in this regard. It must be knows exactly what is being done when selecting sites for offshore wind. The primary consideration for the selection of sites for wind farms must be based on where windfarms will do least damage to ecosystems. We must first do the least environmental harm possible. Site selection therefore must be science led. To date site selection on the East Coast has been developer led without adequate independent environmental assessment. Blindly chasing targets without safeguarding biodiversity is counterproductive. The observer believes it must start with a clear scientific analysis of where we need to protect the carbon sink, in other words we must start with effective Marine Planning. While new Marine Planning legislation has gone some way towards this, legacy projects advanced under the hopelessly inadequate 1933 legislation continue to hold special status and too much power to grant or refuse licences lies within the sole remit of one Minister. **Flawed Marine Planning** Even for ordinary citizens without scientific expertise, it is not hard to see from the work done by voluntary groups and Community Councils, that there has been a long history of systemic flaws in Irish Marine planning. Relative to other jurisdictions, Ireland to date has designated an unacceptably tiny portion of its marine environment for protection. In this planning vaccum, Legacy Projects that made applications under outdated 1933 legislation have been afforded special status going forward. **Information emerging from Voluntary Groups** Emerging evidence unearthed by voluntary groups, community councils and concerned citizens indicates that decisions not to designate the Kish/Bray Sandbanks for protection in the past were based on dubious studies, inadequate assessments and concerns other than scientific ones. This is deeply worrying. These groups must be able to have confidence that the Government on their behalf, will engage bodies who have appropriate expertise to assess these complex environmental issues.	the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process. **Decisions must be based on science** The designation of Marine Protected Areas is an active workstream being progressed by the State currently (gov.ie - Marine Protected Areas (www.gov.ie)). This process is outside of the control of RWE. The application documentation demonstrates that with the committed techniques proposed to be employed, the limited scale and temporal extent of the proposed site investigations, they will not have any significant effects on the environment, including marine habitats and coastal erosion. **Inadequate Public Information and Consultation** An Independent Environmental Consultant (IEC), appointed by the Department of Housing, Local Government and Heritage, have undertaken a Screening for Appropriate Assessment (AA) (stage 1 screening for the likelihood of significant effects on Natura 2000 sites), which has concluded that a Stage 2 Appropriate Assessment under the European Communities (Birds and Natural Habitats) Regulations 2011 is required in respect of the following sites: • Rockabill to Dalkey SAC • South Dublin Bay SAC • Lambay Island SAC • North Bull Island SPA • South Dublin Bay and River Tolka Estuary SPA. The IEC will take account of the submissions to this current consultation received from the public, along with observations from the Prescribed Bodies, when preparing a Natura Impact Statement for the Minister for Housing, Local Government and Heritage to inform the Minister's decision regarding the Stage 2 Appropriate Assessment.

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Decisions must be based on science Until we have sufficient designation of MPAs based on best independent scientific expertise people simply cannot stand over the selection of sites for near shore wind farms or their investigative work. Before intrusive investigations are allowed for such industrial development it must be known what areas need protection. Granting licences in advance of this is premature. The observer fully supports the Submissions made in relation to this Foreshore Licence Application by Coastal Concern Alliance and Dr Owen Clarkin. In their submissions, in the observer's opinion, they have provided evidence that far outweighs the evidence provided to date by RWE Renewables regarding the impact of wind farm investigation work and windfarm development on vulnerable marine habitats, and on areas vulnerable to coastal erosion in the context of increased adverse weather events. The observer completely shares their concerns and call on the Government to carefully consider the volumes of scientific information they have provided to inform all current and future decision making regarding granting of foreshore licences. It is irresponsible to leave EIA to developers. FOI/AIE investigation has revealed that in 2006 the Marine Licence Vetting Committee reported that EIS relating to Kish and Bray Bank Wind Farms was found to have "serious shortcomings" leaving it "deficient in its content" and was not satisfied that it complied "with relevant EU and national EIA legislative requirements". The Government must commission independent investigations to collect and analyse data based on up to date methodologies. **Inadequate Public Information and Consultation** The issues involved in these Foreshore Licence Applications are extremely complex. To date the Government has failed to provide user friendly information, that ordinary citizens such as myself can relate to. It is not acceptable that voluntary groups and concerned citizens are left with the onerous task of challenging the submissions made by Wind Farm developers in the absence of meaningful unbiased public information and consultation. The NPWS has been chronically under resourced for years and because it has only had a very recent injection of funds it is now having to play catchup in gathering data relating to	

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these matters. Voluntary groups have had to step into the breech, gather information, wade through the licensing history, make FOI/AIE requests, make complaints to the EU, organise public information meetings, analyse the data and generally act as watchdog. Pitched against the resources of massive wind farm developers backed by Government this feels less than democratic.	
Submission 14 **Private** Same as Submission 10 above	Refer to response to Submission 10
Submission 15 **Private** Same as Submission 10	Refer to response to Submission 10
Submission 16 **Coastal Concern Alliance** **Introduction** Coastal Concern Alliance (CCA) welcome the acknowledgement by the Department that Likely Significant Effect on a number of Natura 2000 habitats and species could arise as a result of the proposed development activity for which consent is sought in this Foreshore Licence application. The CCA assumes that all of the pertinent information included in their submission in response to the Foreshore Licence Application (2021) will be considered in the current additional Stage 2 Appropriate Assessment required by the Department. **Stage 2 Appropriate Assessment** It is the competent authority's responsibility to carry out Stage 2 Appropriate Assessment, with full details of the plan or project being considered at this stage. <u>Full details of the Plan or Project are not considered.</u> The current Appropriate Assessment is being carried out for the stated purpose of obtaining 'authorisation to undertake a geotechnical and geophysical site investigation for the proposed Dublin Array offshore wind farm development…'. Therefore, the full details of the project are not considered in the screening for this Appropriate Assessment.	The grant of a foreshore licence which gives permission to undertake surveys and site investigations to inform the design of the wind farm or to collect data for monitoring purposes is made on terms which are expressly without prejudice to the subsequent mandatory development consent application to be made to An Bord Pleanála under the Maritime Area Planning Act, 2021 and its associated consent framework. The site investigation works carried out at a preliminary stage of a project design are not inextricably linked to the construction and operation of the project itself, as the former can occur without the latter, therefore the development and operation of a wind farm is not a probable or likely consequence of granting a foreshore licence application for site investigations. **Preliminary Examination for EIA** 1. Annex C, EIA Screening and Environmental Report concluded that due to the nature, scale and location of the proposed site investigation and ecological monitoring that no foreseeable significant effects on the environment will arise. The Environmental Screening Stage Report and Preliminary Examination for EIA was prepared by the Marine Advisor to the Department of Housing, Local Government and Heritage and agrees with this conclusion.

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In addition, Annex III of the EIA Directive as amended refers to 'the size and design of the whole project". Clearly, this is not what is addressed. **With reference to the Preliminary Examination for EIA, the CCA take issue with the conclusions drawn.** In fact, the CCA find them extraordinary, given the invasive nature of the proposed investigation (boreholes, sound, sonar, etc) and potential impacts on protected habitats and species. The CCA suggest: 1. The nature of the proposed development is exceptional in the context of the existing environment with endless invasive surveys spanning decades. The investigations proposed have the potential to cause likely significant effect to sandbanks, protected birds (notably terns, a qualifying interest in Rockabill SPA) and cetaceans (harbour porpoise, a qualifying interest in the Rockabill to Dalkey Island SAC, and others). The investigations proposed, include the drilling of up to 61 boreholes in the area of the array on the Kish and Bray Banks, an Annex 1 sandbank habitat, along the cable route and in the vicinity of proposed landfall sites. (Further details below) 2. Significant areas of Ireland's East coast have been subject to ongoing surveys for decades; the current licence application area overlaps the proposed Codling Bank site investigation area. The cumulative environmental impacts from these have not been considered. 3. The size of the area included in this application is exceptional and together with additional large sites under investigation for the Codling wind farm and others, effectively the whole of the East coast of Ireland is subject to invasive surveys. 4. The investigation is proposed in an ecologically sensitive location, the Kish and Bray Banks, and encompasses numerous SACs and SPAs e.g., the Rockabill to Dalkey Island SAC.	Only a proportion of the proposed site investigation and ecological monitoring activities are planned to take place on the Kish and Bray Banks, however even assuming that all activities occurred on the banks, the footprint would amount to 0.013% of the total area of the banks2. The fine sand and gravel sediments which cover the banks are highly mobile and regularly disturbed by natural processes. Any additional sediment disturbed by the works will fall out of suspension almost immediately. No significant effect on the potential Annex 1 habitat are therefore predicted. 2. The likely significant effects arising from the proposed monitoring and site investigation activities, in combination with other plans and projects are screened in Section 7.4 of the Report to Inform Appropriate Assessment and assessed in Section 4.3 of Annex F, the Applicant's NIS. The latter includes an assessment of likely significant effects in-combination with Codling Wind Park's proposed site investigations on the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC and Rockabill to Dalkey Island SAC. The in-combination assessment considers the effects should the works occur simultaneously or sequentially and concludes that in neither scenario adverse effects upon the European Site's integrity will occur as a result of the in-combination proposed works. 3. The geophysical and geotechnical survey boundaries are shown in Drawings 2 and 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable precautionary monitoring across the wider receiving environment and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east as shown in Drawing 6, Annex B. 4. Annex E, Report to Inform Appropriate Assessment has adopted a precautionary approach to identifying Natura 2000 sites within the geographical zone of influence of the proposed works. A significant

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5. The investigations have the potential to affect other environmental sensitivities in the area, notably protected bird species from Rockabill SPA and other locations around Dublin Bay. **<u>Ireland has failed to meet requirements of the Habitats Directive</u>** Ireland have publicly committed to designating 10% of the marine area for protection by 2020 and the target for 2030 is 30%. Currently, just 2.1% is listed for protection and adequate management measures are yet to be put in place. The Department of Housing, Local Government and Heritage is charged with the responsibility for assessing applications for developments in the marine AND complying with Ireland's obligation to designate marine and terrestrial sites for designation. Environmental NGOs have incessantly called on the government to urgently address this deficit in Natura 2000 designations BEFORE vast proposals for extensive wind farm developments are progressed. CCA have, for many years drawn attention to the totally inadequate marine planning legislation that has pertained in Ireland since 1933. The Maritime Area Planning Act 2021 encompasses some of the most undemocratic aspects of the Foreshore Act 1933, embodied in the progression of 'relevant' projects, including the proposed Dublin Array development. A new report, prepared by Fair Seas and based on robust scientific methodology, has proposed Areas of Interest for designation to meet Ireland's obligation under the EU Habitats Directive. Large areas of the East coast are included in these Areas because of their high conservation value. It is incumbent on the government department charged with protecting the marine environment, to set the highest possible standards of environmental assessment with regard to proposed projects that have potential to have very serious environmental impacts. Far from doing this, it appears that there is an enormous drive to advance vast coastal wind farm developments, such as the Dublin Array, BEFORE marine sites are allocated for protection.	number of these sites were subsequently screened out on the basis that likely significant effects will not occur as not all of the three required elements, source, pathway and receptor are present. The Report to Inform Appropriate Assessment takes a precautionary approach and concludes that potential effect pathways for five sites cannot be ruled out and should be carried forward to a Stage 2 Appropriate Assessment. These sites are: • Rockabill to Dalkey Island SAC [003000]; • South Dublin Bay SAC [000210]; • Lambay Island SAC [000204]; • South Dublin Bay and River Tolka Estuary SPA [004024]; and • North Bull Island SPA [004006]. The Screening for Appropriate Assessment conducted by the Independent Environmental Consultant (IEC) appointed by the Department of Housing, Local Government and Heritage (DHLGH) agrees with the conclusions presented in Annex E. The Stage 2 Appropriate Assessment will be undertaken by the Minister of Housing, Local Government and Heritage on completion of this consultation. 5. Annex E, Report to Inform Appropriate Assessment has adopted a precautionary approach to identifying Natura 2000 sites within the geographical zone of influence of the proposed works. A significant number of these sites were subsequently screened out on the basis that likely significant effects will not occur as not all of the three required elements, source, pathway and receptor are present. Rockabill SPA lies outside of the Foreshore License area. No impacts on the qualifying interests of this SPA are predicted due to the limited nature of the works in terms of both spatial and temporal extent. All operations will be a minimum of 13.9 km from the SPA boundary in an area that has existing regular levels of vessel traffic. Any disturbance effects upon supporting habitats of the qualifying features resulting from the proposed site investigation and ecological monitoring will be negligible and there is no potential for likely significant effects to occur.

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Recent reports highlight that the loss of biodiversity is an even greater threat to our survival than climate change. Nature Conservation is the key to addressing both the climate and biodiversity crises. A 2019 UN Report states 'In a blow to human progress, damage to ecosystems undermines 35 of 44 UN sustainable development targets for poverty, hunger, health, water, cities, climate, oceans and land, the authors found.' **Kish/Bray Bank deselected for designation as Special Area of Conservation (2012)** Since CCA made their submission (December 2021) in response to the Application by RWE for a Foreshore Licence to carry out additional surveys in relation to the proposed development of a wind farm on the Kish and Bray Banks, the CCA have continued to carry out an investigation into the manner in which, in 2012, the Kish and Bray Banks were selected by National Parks and Wildlife Service (NPWS) for designation as a SAC, but subsequently removed. The CCA made a preliminary reference to this in their December 2021 submission. **Querying the integrity of the SAC designation process** Additional findings from this investigation are very relevant to the public consultation on Stage 2 Appropriate Assessment. The CCA contend that, had proper procedures, in compliance with the Habitats Directive, been followed in 2012, the Kish/Bray Banks, the Annex 1 sandbank habitat on which it is proposed to construct an offshore windfarm, WOULD have been designated SAC with the qualifying interest 'sandbanks slightly covered by seawater all the time'. As such, the area of the Bank itself would constitute a European Natura 2000 site and would be scoped into the Stage 2 Appropriate Assessment, the subject matter of this consultation. **Natura 2000 Habitats should be selected based on science.** The reason for the removal of the Kish/Bray Bank habitat was stated in Records released to CCA to be that Hempton's Turbot Bank and the Blackwater Bank 'are in almost pristine condition, with good representation of the species typical for Irish sand banks, the location and area of habitat within the network would comply with guidance received from the European Commission, and current indications are that there are no operant or expected pressures at either site that	The Report to Inform Appropriate Assessment takes a precautionary approach and concludes that potential effect pathways for five sites cannot be ruled out and should be carried forward to a Stage 2 Appropriate Assessment. These sites are: • Rockabill to Dalkey Island SAC [003000]; • South Dublin Bay SAC [000210]; • Lambay Island SAC [000204]; • South Dublin Bay and River Tolka Estuary SPA [004024]; and • North Bull Island SPA [004006]. The IEC Screening for Appropriate Assessment agreed with the screening conclusions presented in Annex E, Report to Inform Appropriate Assessment Screening. Please refer to section 3.8 of the IEC's report. **Ireland has failed to meet requirements of the Habitats Directive** The designation of Marine Protected Areas is an active workstream being progressed by the State currently (gov.ie - Marine Protected Areas (www.gov.ie)). This process is outside of the control of RWE. The application documentation demonstrates that with the committed techniques proposed to be employed, the limited scale and temporal extent of the proposed site investigations, they will not have any significant effects on the environment. **Kish/Bray Bank deselected for designation as Special Area of Conservation (2012)** The designation of Natura 2000 sites in Ireland is a matter for the Irish State. RWE have not engaged with any Government Agency or Department concerning the designation of sites. **Sandbank Habitat – SAC or Not** The Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any site preparation nor permanent installations. The footprint of the proposed geotechnical survey of the Kish and Bray Banks will be very small, estimated to be less than 0.013% of the bank area. The fine sand and

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would compromise the long-term sustainability of the habitat feature. (This is not true for Kish/Bray Bank as there is an option on a Foreshore Lease in relation to the Dublin Array Wind Park).' Coastal Concern Alliance are unaware what the term 'option for a Foreshore Lease' means. One hypothesis is that there is a system, of which the public are unaware, by which the Department gives assurances of 'an option for a Foreshore Lease' to prospective developers of offshore wind farms (or other proposed developments). If this is the case this information should be in the public domain. The Habitats Directive requires that only scientific criteria be used in the selection of Natura 2000 sites. Clearly, whether or not the site has been targeted for industrialisation is not a scientific consideration. Therefore, the CCA believe that the removal of the Kish/Bray Banks from designation as a SAC is in breach of the EU Habitats Directive. **Relevance in Current Stage 2 Appropriate Assessment Consultation** The removal in 2012 of the site selected as a SAC by the NPWS, the Kish/Bray sandbanks, is especially pertinent given the current consultation which, it appears, is being carried out to determine impacts on Natura 2000 habitats and species that could result from the undertaking of the investigative surveys (and the subsequent construction of a wind farm) that RWE and the Department deem necessary even at this point, ten years after it was stated in a Departmental Record, dated 2012, 'Justification for the designation of sandbanks', that a lease option on this site was already in place. It is not possible, then, to separate the environmental impacts of the investigation works from the impacts that would result from construction of the windfarm. **Ongoing investigations at National and EU level** A complaint has been lodged with the European Commission in relation to the removal of the Kish/Bray Bank from SAC designation and in relation to other findings from the observer's investigation. Given the very serious nature of the findings, aspects of the material have been appealed to the Information Commissioner and the Commissioner for Environmental Information.	gravel sediments which cover the banks are highly mobile and regularly disturbed by natural processes. Any additional sediment disturbed by the works will fall out of suspension almost immediately. No significant effect on the potential Annex 1 habitat are therefore predicted. The limited scale and nature of the proposed works will not have an effect on the form or function of the sandbanks or the coastline. The potential impact upon marine geology, oceanography and physical processes of the wind farm development, alone and cumulatively with other proposed wind farm projects, will be assessed and the results reported in the Environmental Impact Assessment Report (EIAR) which will accompany the development consent application under the Maritime Area Planning Act, 2021 as amended, and its associated consent framework in due course. The EIAR will address physical, biological and human receptors. The Foreshore Licence application is for site investigation and ecological monitoring only. The proposed windfarm will in due course be the subject of further consultation through the development consent process under Maritime Area Planning Act, 2021 as amended, and the associated consent framework. If works associated with the proposed wind farm include activities which will require a Dumping at Sea Permit an application will be made in due course to the Environmental Protection Agency under the Dumping at Sea Act 1996, as amended. **Birds – Kish Bank SPA for Birds** **NPWS** **Record Showing that Kish/Bray Banks would be designated as SPA for Birds** The designation of Natura 2000 sites in Ireland is a matter for the Irish State. RWE have not engaged with any Government Agency or Department concerning the designation of sites The potential effects on features of the Natura 2000 Sites located within the zone of influence of the proposed activities including effects

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<u>Sandbank Habitat – SAC or not</u> **Damage to the integrity of the sandbank** The importance of sandbank habitat has been highlighted in a recent report (2021) from IUCN, the prestigious global nature conservation body, entitled 'Mitigating the Biodiversity Impacts Associated with Solar and Wind Development' which states (p95) *Offshore wind farms could impact a variety of offshore and coastal habitat types, such as sandbanks, coral reefs, seagrasses, mangroves, salt marshes, oyster beds and wetlands. These habitats may also provide important ecosystem services such as fisheries and coastal protection.* *Such habitat types are sensitive to loss, fragmentation and degradation, and restoration can be complex and variable by life stage. Careful planning and site selection are key to avoiding sensitive habitats (Section 3), for example to minimise impacts of the export cable landfall.* The complete absence of site selection oversight and the developer-led planning that still pertains in Ireland is far from the 'careful planning and site selection' described by the IUCN. The UN Convention on Biological Diversity, to which Ireland is a party, aims to halt the loss of biodiversity by 2020, i.e. conservation of ecosystems, habitats and species, both inside and outside protected areas. Under the Treaty on the Functioning of the European Union, environmental protection is an integral part of all EU policies. Irrespective of whether or not the Kish and Bray Banks are inside or outside protected area, it is clear that these sandbanks are an important habitat both as an Annexe 1 sandbank and as a foraging and feeding ground for numerous endangered bird species (see below). It is also clear that the construction of wind farms on sandbanks will damage the habitat and that the current continued investigation cannot be separated from the construction of the proposed windfarm.	due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites have been considered in the Screening Assessment presented in Annex E. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are predicted. **Birdwatch Ireland** S.I. No. 353/2011 - Foreshore Regulations 2011 prescribes the bodies for consultation and submission of observations to the Minister for Housing, Local Government and Heritage in respect of an application for a foreshore lease, licence or permission as may be issued under the Foreshore Act. **Terns, Sandeels and Spoil Disposal** This consultation and the Appropriate Assessment screening process to which it relates is for permission to conduct monitoring surveys and site investigations. The potential effects on features of the Natura 2000 Sites located within the zone of influence of the proposed activities including effects due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites have been considered in the Screening Assessment presented in Annex E. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are predicted. A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended and the associated consent framework. A detailed assessment of the potential impact upon bird species, from the project alone and in combination with other projects, using up to date modelling and assessment methods and informed by monitoring data from operational wind farm sites will be undertaken and will form part of the development consent documentation. **Cetaceans**

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In response to queries submitted by CCA to NPWS (2020), it was stated: **CCA Question**: Is it the view of NPWS that development of extensive windfarms on 'sandbanks covered by sea water all of the time' does remain a threat to the integrity of the banks, as stated in Conservation Assessment reports and in the NIS of the NMPF? **NPWS Answer**: The installation of windfarms on Sandbanks can be expected to: - result in a loss of the Annex I habitat area, - introduce a different habitat to the site in the form of artificial reef and - changes the hydrodynamics over the sandbank. It may also indirectly affect the habitat's structure and functions by introducing either or both invasive alien species and opportunistic species. The extent to which the current proposed surveys will damage the sandbank habitat itself has not been considered. **Dredging damages sandbank habitat** The Status of EU Protected Habitats and Species in Ireland, 2019 (Section 7.3) refers to the potential threat to sandbanks from dredging (fisheries). Dredging, which is required to clear accumulated sand from the bases of the seven small wind turbines on the Arklow Bank, was permitted in 2017. Consent was given to dredge and dump 99,999 tonnes of sand material on the bank over a period of eight years, so one can assume that this activity is continuing. Clearly this constitutes a very significant impact on the sandbank and the species that live there. The Dumping at Sea permit was awarded by the EPA without any Environmental Impact Assessment (EIA). The Marine Planning Foreshore Section of the Department of the Environment, Community and Local Government had confirmed that an Environmental Impact Assessment was not required. Given that dredging is known to be an activity that damages the seabed, the failure to	The likely significant effects of the proposed site investigation and ecological monitoring activities on harbour porpoise, which are qualifying interests of Rockabill to Dalkey SAC are assessed in the Sections 4.2 and 4.3 of the Applicant's NIS, Annex F to the application documents. No likely significant effects on the Conservation Objectives of the SAC are predicted ether from the surveys alone or in-combination with other plans or projects. All cetaceans are European Protected Species (EPS) listed under Annex IV of the Habitats Directive, which means that they are protected wherever they occur and it is an offence to deliberately capture, kill, injure or disturb animals classed as EPS. An Article 12 Assessment of potential effects on Annex IV species is provided in Section 5 of Annex F which concludes that due to the short duration and temporary nature of the survey works, which will be conducted in accordance with best practice and Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014), that no impact upon Annex IV species will occur. **Impacts at Landfall site and project splitting** The above comments relate to the construction of the wind farm and associated infrastructure. This consultation and the Appropriate Assessment screening process to which it relates is for permission to conduct monitoring surveys and site investigations in the Foreshore only. The site investigation works carried out at a preliminary stage of a project design are not inextricably linked to the construction and operation of the project itself, as the former can occur without the latter, therefore the development and operation of a wind farm is not a probable or likely consequence of granting a foreshore licence application for site investigations. **Support for other submissions, discussion, what will they do now and conclusions** The comments set out above are addressed to the State rather than RWE it would be inappropriate to comment on same.

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carry out an EIA is clearly out of line with best environmental practice, as stated by the Irish Whale and Dolphin Group. It can be assumed that the sandbank habitat on the Kish/Bray Bank is likely to react in precisely the same manner as the sand on the Arklow Bank and that similar remedial action would be required to clear sand. If dredging is a damaging process flagged by NPWS with regard to fishing, then dredging to remove sand from the bases of wind turbines is equally damaging. **Birds – Kish Bank SPA for Birds?** **National Parks and Wildlife Service** The National Parks and Wildlife Service, with reference to 'sandbanks slightly covered by seawater all the time' (e.g., The Kish and Bray Banks) state on their website (29/7/2022): *'Shallow sandy sediments are often important nursery areas for fish and consequently can provide feeding grounds for seabirds (especially puffins (Fratercula arctica), guillemots (Uria aalge) and razorbills (Alca torda)) and sea-duck (e.g., common scoter (Melanitta nigra)). A survey undertaken upon the habitat of terns in the Irish Sea showed that the Kish Bank had significant numbers of auks (guillemots, razorbills etc.) and terns in the area. Roseate, Common and Arctic Terns were recorded roosting on the Kish Lighthouse and peaked in numbers during late August and early September. The presence of these bird species is indicative of feeding resources in the area.'* **Record showing that Kish/Bray Bank would be designated as SPA for Birds (2012)** Reference has already been made in CCA's submission (2021) to this consultation (p 9) to the fact that in an official 2012 document received from the Department, it was stated that the Kish/Bray Bank would be likely to be designated as a Special Protection Area for Birds. This is unsurprising, given the extensive evidence that these banks are important feeding and foraging grounds for many species. Rockabill Special Protection Area has as its conservation objectives Purple Sandpiper plus the three tern species - Roseate Tern, Common Tern and Arctic Tern. **Birdwatch Ireland**	

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The CCA can see no submission from Birdwatch Ireland in relation to this Appropriate Assessment Consultation. However, the CCA assume that Birdwatch Ireland is a statutory consultee. Can this be confirmed? Lack of resources for these critically important NGOs is likely to be a factor contributing to their inability to contribute. While we appreciate that this is not the purpose of this consultation, it is imperative that adequate funding is provided so that NGOs, such as Birdwatch, can express the views of the public with regard to the need for environmental protection. The CCA welcome the increased funding provided to NPWS and hope that this initiative will extend to improving funding for environmental NGOs. **Tern Conservation on Rockabill** Ireland plays host to the largest European breeding colony of Roseate Terns on Rockabill Island. Considerable conservation work has been undertaken over the years by Birdwatch Ireland, whose efforts have been extremely effective. Their website states that efforts on Rockabill now make this one of the most successful conservation projects in Ireland. If development was to be consented on the Kish/Bray Banks, the impacts on these protected bird species could not be mitigated and years of conservation work would be at risk of being wasted. Given that determined efforts and vast resources have been invested to conserve and enhance the habitat for Roseate Terns on Rockabill and that it is known that the Kish and Bray Banks are important foraging and feeding grounds for these birds during the breeding season (and pre & post breeding) it seems extraordinary that these sandbanks have not been designated as a Special Protection Area (SPA) for birds, as it was anticipated, in 2012, they would be. Below the CCA list some of the sources of information relating to the Kish & Bray Banks as important areas for birds, although given that this is already acknowledged at official departmental level, this should not be necessary. **Environmental Impact Bird Survey – Dublin Array, 2013** A document entitled 'Progress Report No. 2 on Seabird Surveys Sept 2001-Sept 2002' provided information on a year long survey of birds on the Kish / Bray Banks. This survey was commissioned by the developer, Saorgas Energy. It is	

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of note that in spite of the fact that this was a developer commissioned survey, the results as presented raise serious questions about the suitability of the site for windfarm development. What is extraordinary is that this appears to have been totally ignored by the Department. The Report stated: The existing information identified during the desk study shows that the Kish Bank supports important bird populations. A further year-long survey followed. Results of the year-long survey The survey results showed that the main Kish Bank study area held a range of important bird populations, including (based on the peak counts recorded) internationally important numbers of roseate terns, nationally important numbers of Manx shearwaters, shags, kittiwakes, common terns, guillemots and razorbills, and regionally important numbers of gannets, cormorants, and arctic skuas. **Birds displaced by windfarm** The other potential impact highlighted in the report was the possible displacement of foraging seabirds from the Kish Bank by the presence of the wind farm. This was identified as a potentially significant impact for 'more species of national importance'. As stated in the report, shallower sea areas such as the Kish Bank are relatively scarce in this region, the Kish itself constitutes quite a large proportion of the available resource. Therefore, any effective loss of habitat would be more likely to result in significant ecological consequences, such as reduced breeding success and increased mortality. The report states: 'Alternative feeding areas with similar characteristics may well be limited. Similarly, for birds outside the breeding season, loss of feeding resources could be significant. Again, if a disturbance effect occurs, its ecological consequence would be dependent on the availability of alternative feeding areas. If such alternative areas were not available and then birds were unable to reach adequate body condition before migration, this could result, for example, in increased mortality rates.'	

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CCA Note: Since this result was published, razorbills, puffin and kittiwake have been added to the Endangered list of species threatened with extinction. Kittiwakes feed almost exclusively on sandeels. Given that it is clearly stated that shallow sea areas like the Kish/Bray Banks are scare, damage or disturbance of any kind in the area could not be mitigated. **Tern Feeding and Foraging Habits** Table 1 compiled from a JNCC Literature review of tern (Sterna & Sternula spp.) foraging ecology provides information on the feeding and foraging range of all tern species that occur in Ireland. Table 1. Tern Feeding Habits and the importance of sandeels **Species** / **Primary Food Source** — **Adults** / **Chicks** **Little Tern** — Sandeel / Sandeel, Herring, Gobies **Sandwich Tern** — Sandeel, Gobies / Sandeel, Spratt, Herring **Common Tern** — Sandeel, Cluepids / Sandeel, Clupeids, Gadoids **Arctic Tern** — Sandeel / Sandeel, Sprat **Roseate Tern** — Sandeel, Cluepids / Sandeel, Cluepids, Gadoids This Table shows that the Kish/Bray Banks, a sandeel habitat, is a significant feeding and foraging area for these important Red Listed protected species. **Sandeels – What The Wildlife Trusts say** Sandeels are small eel-like fish which grow up to 30 cm in length and can often be found in vast shoals. They feed primarily on plankton of variable size, ranging from small plankton eggs up to larger energy rich copepods found in great abundance in Scotland's seas. Some species of sandeel can live for as long as 10 years, reaching maturity at around 2 years of age. Sandeels have a close association with the sandy substrates into which they bury to protect themselves from predators. Once settled, studies have shown	

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that sandeels are mostly resident, rarely travelling over 20 miles from the areas they call home. In fact, they rarely emerge from the sea bed between September and March, except to spawn. Between April and September, they swim in large shoals close to the seabed and will burrow into the sand to escape predators. In the winter months, they bury themselves up to 50cm in the sand. Given that it is clear that the Kish and Bray Banks are the habitat that provides the food source for a range of critically endangered bird species listed as qualifying interests in nearby SPAs, no invasive drilling / boreholes should be permitted on these banks. The presence of a large sandeel population highlights the wealth of biodiversity in this area of Ireland's coast, a known hot-spot for the plankton that are the food source for the sandeels. Reduction in the food source for protected bird species could not be mitigated. **Newton & Crowe Survey, 1999.** This survey states: 'A total of 3,015 birds of 26 species was recorded around the north end of the Kish Bank in August and September 1999. Of these 25 were true seabird species and one (Dunlin) was a wader species. Common Guillemots, Black-legged Kittiwakes and Common Terns were the most commonly recorded species while Roseate Terns, Kittiwakes and Common Terns were the predominant species seen roosting on the Kish Lighthouse. Over 1,000 terns were estimated to be roosting here on 3rd September 1999. A high number of Common Guillemots (1,482 on 3rd September) was also recorded in the area.' **Ringsend Wastewater Treatment: Appropriate Assessment of Spoil Disposal** An Appropriate Assessment was carried out in relation to the Ringsend Spoil Disposal. In the conclusions it is stated: 'A total of nine species of seabirds, which are qualifying interests for a number of Natura 2000 sites on the Dublin coast, are likely to occur regularly in the proposed spoil disposal area to the west of the Burford Bank. The northern part of the Kish Bank (6 nautical miles or 11 kilometres east) is known to be an important foraging area for these seabirds in August and September.' **Cetaceans**	

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The Irish Whale and Dolphin Group, in their submission on the Appropriate Assessment for the Ringsend Wastewater Treatment Plant, with reference to Kish Lighthouse, Howth Head and Dalkey, give a summary of recent sightings at each location. They stated 'harbour porpoises are frequently recorded at all sites (up to 24 sightings in one year in 2011 at Howth Head). Minke Whales are also regularly recorded at Kish Lighthouse and occasionally at the other locations. Bottlenose Dolphin are being recorded with increasing frequency, especially at Dalkey. The 1999 surveys of seabirds also recorded cetaceans on the Kish Bank in August and September. The main species recorded was the Harbour Porpoise with a single dead specimen of Risso's Dolphin (Newton and Crowe 1999). Their submission goes on to refer to a targeted survey of Harbour Porpoise in the Dublin Bay area in July-September 2008 that found that 'The mean group size was quite consistent ranging from 1.08 to 1.50. The overall density estimate was 1.19 per km^2 which gave an estimated abundance of 138±33 porpoises. This represents one of the highest densities of the species recorded in Ireland to date (Berrow et al. 2008). **<u>Impacts at Landfall Site</u>** **Shanganagh** There has been no outline of how an actual route for cables in this area would proceed in order to access the electricity grid. Whatever direction is taken will have an impact on shoreline habitats in a zone with small but integrated eco-systems. The shingle shore is anchored by vegetation which helps withstand high tides and protects against coastal erosion, a known risk for Ireland's East coast. **Project Splitting** The cable that it is proposed to bring ashore at Shanganagh has to have a proposed route by which power is taken ashore. No consideration has been given to the potential environmental impacts of this, which suggests project splitting. Project splitting is contrary to EU law. It is clear that in order to avoid misuse of the European Union rules by splitting projects which, taken together, are likely to have significant effects on the environment, it is necessary to take into account the cumulative effect of such projects which have an objective and chronological link between them.	

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Sandmartins  Sandmartin birds return every year to the soft cliff faces of the Shanganagh to Corbawn Shoreline and at stretches further south along the Bay. This breeding pattern has been long established. Was this considered in the Screening Report? Are sandmartins a Protected species in Ireland? In the UK it is clear that they are. The RSPB website states 'Sand martins and their active nests are fully protected by the Wildlife and Countryside Act 1981. Sand martin nests are protected from the moment birds begin tunnelling. Penalties can include fines and imprisonment.' Clearly the creation of a cable route through a cliff face that annually houses a breeding colony of sandmartins would have a devastating impact on the birds. These effects cannot be mitigated. **Support for other submissions** CCA are supportive of submissions from other concerned citizens who have expressed reservations about various aspects of this proposed Foreshore Licence Application. This includes, but is not limited to: • Residents in the area close to the Shanganagh Cliffs proposed landfall site, as referenced above. • More detailed submissions relating to the impacts of noise on cetaceans, notably Harbour Porpoise • Detailed submissions in relation to impacts on Birds. • Submissions expressing concern about the archaeology of the area surrounding the Kish/Bray Banks • Killiney Bay Community Council.	

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Discussion Coastal Concern Alliance have, since their formation in 2006, appealed to government to put in place proper planning and environmental assessment procedures for offshore development. It is absolutely evident to the CCA at this stage, after 16 years of endless campaigning, that this has not happened, but it could have. Consecutive administrations have failed to bite the bullet and legislate effectively for proper marine planning and biodiversity protection in the seas. **What will they do now?** What the CCA have come to expect is that they will ignore, deny, defend or justify their long-held determination to support an untenable position. The system is broken. Recent investigations show that there are major flaws in the current marine management process. The NPWS Review, carried out by the Department of Housing, Local Government and Heritage under the guidance of Minister Malcolm Noonan revealed that with regard to the Marine, NPWS was not equipped to meet their statutory responsibilities. A recent investigation, commissioned by SWAN confirmed that the 2021 National Marine Planning Framework is not ecosystem based and does not fulfil the requirements of the Marine Spatial Planning Directive. Recent revelations regarding systemic issues in An Bord Pleánala have been aired in the media and raise very significant questions about the reliability of that critical agency. And it is in this environment that citizens are left to respond to consultations such as the one in question here. A new approach is needed. Ireland's elected (and unelected) representatives must stop and re-think. Biodiversity protection must be brought centre stage and given the consideration it needs. **Conclusions** In the context of the current Government discussions on new emissions targets, Minister for Environment Eamon Ryan has stated (29 July 2022) that the Government priority in land use must be "to restore Nature". This must also be the priority with regard to use of Ireland's vulnerable coastal waters already under threat from a variety of human influences. Climate protection and biodiversity protection must go hand in hand.	

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Submission 17 **People Before Profit** People Before Profit (PBP) would like to state in advance of this submission that they are 100% in favour of advancing renewable energy infrastructure as a matter of urgency. They believe this should be state funded and state led to ensure the maximum benefit for people and to prevent profiteering and speculation by private companies. PBP believe that renewable energy cannot and should not come at the expense of local habitats, biodiversity and the greater environment. PBP look to the case of Derrybrien where the siting of a wind farm at the top of a mountain caused untold damage when the weight of the windmills and the subsequent changes to the ecology, caused the mountain to collapse. We need to learn from this disaster. We also need to learn from the desperate mistakes that have been made in planning on land in Ireland when developers were allowed to select their owns sites and direct planning decisions. The Marine area is not only our biggest carbon sink it is an enormously valuable natural resource. Planning for renewable energy at sea must be done with the utmost care and must use the precautionary principal. The marine area must be analysed and audited in advance of choosing sites for renewables to ensure the best protection of sensitive habitats and species. The state must then, and only then, designate areas for development and after that the planning and siting of renewable energy farms should be progressed All this must be directed and decided by the state in conjunction with the environmental experts not the developers. People Before Profit welcome that the Minister has decided that an appropriate assessment is required. This assessment is an absolute necessity because the area in question is mainly around the Kish and Bray Sand Banks. Sand banks are an important habitat and are listed under Annex 1 of the Habitats directive. According to the National Parks and Wildlife Service (NPWS),	The points made in this submission appear to be addressed to the State rather than RWE. The limited scale and nature of the proposed site investigation and ecological monitoring, which are the subject of this Foreshore Licence application will not have an effect on the form or function of the sandbanks or the coastline. The potential impact upon marine geology, oceanography and physical processes of the wind farm development, alone and cumulatively with other proposed wind farm projects, will be assessed and the results reported in the Environmental Impact Assessment Report (EIAR) which will accompany the development consent application under the Maritime Area Planning Act, 2021 as amended, and its associated consent framework, in due course.

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they contain unique communities of invertebrates while the sandy substrate is home to sand eels, a small sliver of a fish that gathers in shoals. Like sand dunes on land, sandbanks are dynamic systems, constantly shifting with the waves and currents. In this way the sand on the sandbanks is connected to the sand on the shore and the dunes behind the shore. The wind and water are constantly moving this sand around, blowing particles inland, dumping sand from the sea onto the shore and washing sand from the shore back out to sea are an important food source for sea birds such as terns. So, sandbanks are important for wildlife but also serve a very practical purpose in protecting the coastal infrastructure. The vast majority of sand banks around the Irish coast are located in the Irish Sea and this is perhaps not surprising given the expanses of sandy beaches that can be seen to stretch from County Wexford in the south to County Down in the north. When the Habitats Directive became law in Ireland in the late 1990s, Ireland had an obligation to designate a representative sample of the sandbanks within Special Areas of Conservation (SAC). The importance of the above cannot be understated and that is why not only do PBP welcome an Appropriate Assessment but crucially PBP also request that there is an immediate analysis of all of the areas along these sand banks and to advance the protection of the Marine Area in advance of any new developments along these banks.	
Submission 18 **Private** The observer included the following in their submission: 1. An amended version of their original submission (No. 11 in Table XX), which still stands (amendments based on clarification of Applicant's comments) 2. A response to the Applicant's comments on their original submission 3. Additional comments on marine life Dublin Array license application FS007188 Observations	**1. Remaining Risks/Lack of Robust Scientific Data** Annex E, Report to Inform Appropriate Assessment has adopted a precautionary approach to identifying Natura 2000 sites within the geographical zone of influence of the proposed works and designated sites for all relevant species, including fish, birds and cetaceans are identified for the purpose of the screening assessment. The Report to Inform Appropriate Assessment takes a precautionary approach and concludes that potential effect pathways for five sites cannot be ruled out and should be carried forward to a Stage 2 Appropriate Assessment. These sites are:

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1. Remaining Risks/Lack of Robust Scientific Data: Granting of this license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive') by failing to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. • Fish (particularly non-commercial variety), bird species and cetaceans in and around the site location and impact on the same has not been adequately assessed. This may result in a contravention of the Birds Directive (Directive 2009/147/EC) as well as the habitats directive (92/43/EEC). • Annex E, Paragraph 6.2.6 states: "For the equipment used within the proposed works, SSS and MBES surveys, the frequency ranges vary between 190 and 420 kHz (MBES) and 300/900 kHz (SSS). All these systems fall outside the hearing threshold of all species (harbour porpoise has the highest frequency range of 200 Hz to 180 kHz (Southall et al., 2007)). Magnetometer surveys are passive systems and do not emit a signal or generate underwater noise. Therefore, it is considered that there would be no potential for injury or disturbance to any cetacean or fish species from these equipment." However, though the specific SSS and MBES used in this license may not effect marine mammals, Sub Bottom profiler (boomer, SBP) and UHR operate at a frequencies within the range of harbour porpoises, which may be performed over a 24 hour period. Additionally DP Vessels noise range is within the audible range of the Harbour Porpoise and no assessment of the risk, nor any mitigation measures are provided. Therefore, there is insufficient evidence that the proposed works, individually, or in combination with other plans or projects, is unlikely to have a significant effect on any European Site/s subject to specific mitigation measures. • Paragraph 6.2.15, Annex E presents an unacceptable argument for the use of SPL assessment of noise levels over the use of the current gold standards, SEL. The recent license application on Arklow Bank successfully calculated noise levels using SEL technique and there is no technical reason why this could not also be adopted by this developer. The availability of 'easy calculate figures' in	• Rockabill to Dalkey Island SAC [003000]; • South Dublin Bay SAC [000210]; • Lambay Island SAC [000204]; • South Dublin Bay and River Tolka Estuary SPA [004024]; and • North Bull Island SPA [004006]. The Applicant's NIS, Annex F contains an assessment of the impact of the proposed site investigation and ecological monitoring on the relevant qualifying interests of these sites and concludes with the mitigation set out in section 4.4 that no likely significant effects will occur. The sub bottom profiler intended to be used is a parametric SBP (pinger) with the Innomar Medium SES-2000 used as an indicative model which has source level 225 dB and 85-115 kHz. The screening assessment presented in Annex E of the application documents was based on the use of a sparker system, which had the greatest impact ranges of the types of SBP then under consideration. The assessment concluded that animals may be disturbed within a few hundred metres of the sound source. Whilst the source level of the parametric pinger system is higher than that of the sparker systems, the narrow beamwidth of the former results in significantly smaller impact ranges, with sound levels reducing to 120 dB SPLrms within a few metres of the sound source (CSA, 2020). The noise associated with large shipping vessels is widely considered unlikely to cause physical trauma to marine mammals, but could make preferred habitats less attractive as a result of disturbance (Erbe et al., 2019). A study by Beck et al (2013) notes that marine mammals frequenting the Dublin Port shipping channel will be well accustomed to shipping noise. Ambient underwater noise in Dublin Bay has been estimated at around 113 db by Beck et al. (2013) and by McKeown (2014). Given the existing vessel levels within the site and that the noise associated with

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the literature does not represent a reasonable excuse for not developing figures where they are lacking. This does not represent an appropriate assessment. • Paragraph 6.2.15 Annex E states that: "While the sound levels from drilling may result in some degree of localised disturbance to marine mammals any disturbance would be expected to be small-scale and short-term with surveys lasting approximately 2 -3 months, with no effects lasting beyond the period of the works." Even if not permanently deafening these creatures, the prolonged noise created by the proposed license, over the license period, will inevitably force them to avoid the wider area (250 km considered as a buffer for cetaceans, as stated 3.3.6 Annex E) and reduce their feeding grounds. Given that much of this work is occurring both in and around Rockabill to Dalkey Island SAC, this will have a knock-on effect on their populations and, as a result, the status of their SAC. Combining this with other adjacent projects along the coast, this could have a really large effect on local populations. • Paragraph 6.2.16 of Annex E states that: "Modelling for sound levels from drilling works for offshore wind farms (e.g. East Anglia Two Offshore Wind Farm) identified that the threshold for PTS and TTS onset for all marine mammal hearing groups would be less than 100 m from a drilling vessel." Yet no reference to the proposed modelling is provided and it appears that much of the assessment is based on this figure, the basis on which it was calculated remains unknown. The recent license application on Arklow Bank (FS007339) indicated a TTS for high frequency cetaceans (incl. *Phocoena phocoena* aka Harbour porpoise) of 757m for vessels using DP (as is proposed in this license application) and 607m for vibro-coring. Therefore, given the lack of evidence presented in this application fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works and granting of this license would contravene article 6(3) of Directive 92/43/EEC. 2. Insufficient Evidence or Mitigation Measures:	the survey vessels will be short term, temporary and intermittent and that the proposed works will not result in a significant increase in vessel traffic in the area no significant disturbance or displacement effects are expected for any marine mammal species. The submission contends that the use of SEL is a 'gold standard' and therefore is necessary for the assessment of noise levels. Nowhere in the Southall et al. (2019) guidance do the authors of that paper suggest that conversions are necessary or appropriate to be undertaken between different metrics to inform noise impact assessment. RWE is unaware of any "up-to-date international best practice" associated with this conversion. Whilst it is possible to convert SPLrms (the average amplitude of the variations in pressure over a specific time window) to SELcum (weighted sound exposure level over 24 hours) the conversion relies on numerous overlapping assumptions, each with significant conservatisms and therefore does not present an accurate figure on which to base an assessment. To reiterate, RWE has used SPLrms as this is the independent metric quantifying drilling sound source levels which are in the public domain. There are no monitored source levels reported using SEL and therefore any calculations using this metric would require conversions with the associated scientific limitations as discussed above. RWE notes that the assumptions inherent in the conversion are all stated within the Arklow Bank noise modelling report, which the submission refers to. It should be clearly noted that the SPL(rms) figure has been used for the assessment of noise impacts in that report. Specifically Section 4.4 presents estimated disturbance values based on exceeding the 120 dB re 1 µPa (rms) threshold applicable for all marine mammals for continuous sound and the 140/160 dB re 1 µPa (rms) thresholds for impulsive sound which are the same thresholds used in Annex E Report to Inform Appropriate Assessment and Annex F the Applicant's NIS.

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There is insufficient evidence that the proposed works, individually, or in combination with other plans or projects, is unlikely to have a significant effect on any European Site/s subject to specific mitigation measures. • AA screening information in relation to matters including the bird species studied, the impact of underwater noise on bird species, a lack of clarity in relation to the proximity criteria and zone of influence used in screening sites and a failure to present evidence to support conclusions in relation to in combination effects. • Likely significant effects in combination with other plans or projects were not assessed, including combined effects of past investigations in the area. • The license application indicates that 'The exact locations will be determined prior to undertaking the site investigation works' however, no detailed grounds on which these determinations will be made has been outlined, therefore no appropriate determination can be made on whether this will adversely affect the integrity of local sites • Granting of benthic grabs/trawls, without preceding drop down camera, ROV or SCUBA dives of the site is poor international practice and may result in the damage to sensitive habitats • The additional mitigation measures "proposed to allow for the presence of harbour porpoise calves during the months of May to September" of "sound producing activities shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO" is totally inadequate and as such a likely significant risk remains in place and approval of this license would constitute a contravention to the habitats directive. • "SAM deployment will take approximately two weeks during mid 2022" (The observer assumes during the geophysical survey), "independent of other surveys, the equipment will remain on site for the duration of the Foreshore Licence to provide a long term data set of pre construction monitoring of marine mammals;" Why not deploy the SAM in advance of the other surveys to ensure that Harbour Porpoise and other marine mammals are not in the Zone of Influence (250 km considered as a buffer for cetaceans, as stated 3.3.6 Annex E) prior to starting the geophysical and geotechnical works. This could not only act as a further mitigation measure but also provide scientific data (which should be published open access) on the effects of acoustic disturbance in and on sensitive SACs whose qualifying interests are Harbour Porpoises.	RWE have based their assessment on similar project modelling such as East Anglia Two3 and remain confident in the conclusions drawn and stated within the report. The East Anglia Two study is publicly available (https://infrastructure.planninginspectorate.gov.uk/wpcontent/ipc/uploads/projects/EN010078/EN010078-001487-6.3.11.4%20EA2%20ES%20Appendix%2011.4%20Underwater%20Noise%20Assessment.pdf). The study assesses drilling associated with the installation of monopiles, which are a more intensive noise source than the small diameter bores which are the subject of this Foreshore Licence application. A further level of precaution arises from the water depths modelled for the East Anglia works which are greater than those in the proposed Foreshore Licence area, as sound propagates further in deeper water. This provides a very conservative and transparent basis for identification of predicted noise levels and their associated impact assessment. RWE contends that due to the conservative assumptions used in the assessment included in the application, that irrespective of whether modelling is undertaken or otherwise, it is beyond reasonable scientific doubt that the risk to harbour porpoise from the proposed site investigation and monitoring surveys is low and the activities will not lead to an adverse effect on the integrity of the SAC. As noted in Annex E (paragraphs 6.2.15 et seq), there is no risk of hearing damage to marine mammals from the proposed Dublin Array site investigation works and any disturbance will occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few hours as the survey vessel undertakes work in that area, with impacts from the works not occurring within the full licensed area for the full duration of the works, The 250 km buffer represents the area of search for SACs for which cetaceans are qualifying interests and is defined

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• With regard to mitigation measures in place to inhibit PTS in marine mammals, no mention of the use of passive acoustic monitoring (PAM) has been mentioned, which would be required for the 'qualified observer' to ensure that no marine mammals were present within the zone of inhibition prior to initiating noise creating works. An observer, no matter how qualified will likely miss sensitive marine mammals in the vicinity without the use of this apparatus and as such a likely significant risk remains in place. • According to the Natura 2000 statement, "the Conservation Objectives to maintain the favourable conservation condition of Harbour Porpoise (Phocoena phocoena) [1351] within the Rockabill to Dalkey Island SAC, are defined by the following list of attributes and targets: • Species range within the site should not be restricted by artificial barriers to site use; and • Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site." Both as a result of noise disturbance and physical destruction of reefs, there is admittedly by phase 1 assessment in the Natura 2000 Statement presented, a "potential for adverse effects" on the qualifying interests (QIs) of the SAC. As outlined in the Natura 2000 statement presented: "With regards the harbour porpoise feature and the temporary overlap with the calving period of harbour porpoise (May to August) within Rockabill to Dalkey SAC, the noise associated with the proposed works described in Section 6.2 and 6.3 of Annex E: Report to Inform AA Screening have the potential for localised disturbance and have potential to disturb and/or displace fish prey items of all cetacean and pinniped species resulting in localised indirect effects" Section 4.2.6 (p. 60) of the Natura 2000 statement states that "given that any noise impacts on cetaceans and their prey would be short term, temporary and intermittent…. potential for disturbance to the species will be minimised and no impacts on the Conservation Objectives of the SAC are predicted." The observer does not accept this statement and would present that the noise disturbance and inhibition of QI species and their food source represents a "restriction by artificial barrier" and is contraindicated by the conservation objectives of the SAC. 3. Unregulated Development Environment:	considering the scale of movement of individuals, i.e. an individual of an SAC population within the buffer zone could potentially move to within the area of the survey works. Mitigation measures specified in DAHG, 2014 will be followed at all times, with monitoring by a qualified and experienced Marine Mammal Observer prior to start-up of noise sources, followed by the use of the 'softstart' procedure which will ensure that no marine mammal is in close proximity to the vessel when the noise commences. As noted above conversion between SPLrms and SELcum results in impact ranges which are so extremely conservative as to not provide anything meaningful lor assessment purposes. RWE have therefore, based their assessment on similar project modelling such as East Anglia Two3 and remain confident in the conclusions drawn and stated within the application. It should be noted that the Article 12 Assessment presented in Appendix 4 of Arklow Bank's NIS concludes that the risk of injury or disturbance to all marine mammal species would be negligible from the geotechnical survey activities and that, in this respect, mitigation is not considered necessary. Despite this conclusion Arklow Bank, like Dublin Array, have committed to implementing the DAHG, 2014 guidelines. **2. Insufficient Evidence or Mitigation Measures:** Section 3.3 of Annex E, Report to inform Appropriate Assessment Screening defines the geographical scale over which possible effects from the proposed works may arise, the "zone of influence". For bird species, the zone of influence was identified through consideration of the species most likely to be present (Table 3, Annex E) (identified through third party data sets and site specific surveys undertaken in support of the Dublin Array EIAR) and connectivity to breeding colonies within foraging ranges of breeding seabirds as defined by Woodward et al. (2019). The impacts of underwater noise on birds are assessed in Section 6.2 of the Report to Inform Appropriate Assessment Screening, Annex E. Any impacts associated with site investigation and ecological

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Granting of this license would contravene article 6(3) of the Habitats Directive by granting a consent to a project which leaves the developer free to determine subsequently certain parameters without first having made certain that the development consent granted establishes conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site. • The development consent, if granted, should establish conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site. This is not evident from this application • The number and type of benthic grabs and trawls is unclear, o in some instances only grabs are mentioned, o in some instances biological trawls are mentioned. o In some areas of the application 30 grabs are mentioned, o in other areas 90 grab samples are mentioned, o yet other areas (Annex E, p.19) states annual sampling for 3 years, including 90 grabs and 90 epibenthic trawls are mentioned o yet other areas (license application) 1-2 weeks/year for up to 3 years is mentioned, which if only a single grab per period was carried out would result in 78 grabs. The license in this regard is unclear and as such the department cannot effectively ascertain if there is a likely significant impact on Natura 2000 sites and as such, represents a contravention of the habitats directive. • The license application area is large relative to the size of the area wherein specifically described activities and monitoring are to take place, particularly to the south. It is unclear from the application why the proposed area is so large and if unspecified activities such as benthic grabs/trawls are to be carried out in the greater license area. If this is the case then further cumulative impacts should be assessed, as the area has recently undergone multiple benthic grab surveys. As this cannot be ascertained for the enclosed documents the department cannot effectively ascertain if there is a likely significant impact on Natura. • The license application states "The inter-tidal and sub-tidal geotechnical sampling locations will be selected after review of the geophysical and environmental data collected during the 2020 Site Investigation campaign. The	monitoring activities will be limited in terms of duration and spatial extent. The foraging ranges provided by Woodward et al (2019) indicate there is a significant amount of alternative foraging habitat within each species-specific range which seabirds can exploit if they are disturbed temporarily from an area. Based on the above, there is no likelihood that a likely significant effect would result from the impact to the seabird species present at the time of surveys. The South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA were screened in and considered with in the Applicant's NIS, Annex F. Both sites are in close proximity to a high amenity area, therefore qualifying species would be accustomed to a high level of noise and visual disturbance. The nature of the proposed survey activities will be short term, temporary and localised. As a precautionary measure the inter-tidal survey at the Poolbeg landfall is proposed to be carried out outside the over-wintering period (Sept – Mar inclusive). Impacts arising from the sub-tidal site investigations and surveys are de minimis. With the mitigation set out in Section 4.4 of the Applicant's NIS in relation to inter-tidal activities no likely significant effect on the qualifying features of South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA are predicted. In-combination effects are considered in Section 7.4 of the Report to Inform Appropriate Assessment Screening, Annex E and Section 4.3 of the Applicant's NIS, Annex F. Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling locations will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives. This will provide a robust and informed sampling array which will avoid damage to sensitive habitats in line with current guidance and best practice for undertaking surveys.

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data will be reviewed for the presence of potential ecological features such as subtidal geogenic reef. Sampling locations will then be micro-sited where necessary to avoid ecological (as well as archaeological) impacts." This represents a likely significant risk that is not clearly defined at the licensing stage and it is left to the developer to decide what constitutes an ecological feature, such as subtidal geogenic or subtidal biogenic reef. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). • The license application states "To prevent damage to saltmarsh and sand dune habitat all access to the Poolbeg intertidal by track machine will be supervised by an ecologist to ensure these sensitive areas are avoided." This represents a likely significant risk that is not clearly defined at the licensing stage and it is left to the developer (or developer employed ecologist) to decide what constitutes a 'sensitive area'. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). • The license application states that in carrying out intertidal works at South Dublin Bay and River Tolka Estuary SPA that "an ecologist will be employed to ensure that disturbance is minimised". Not alone is this an admission of disturbance but it represents a likely significant risk that is not clearly defined at the licensing stage and it is left to the developer (or developer employed ecologist) to decide what constitutes damage to site integrity. • The license states that: "If roosting birds are present on the shore during intertidal works, the nearby sample stations will be postponed until the birds depart, without provocation." It is not clearly defined, at what stage resumption of work will proceed, e.g. after the roosting birds have departed, after the chicks have departed. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive').	As stated in Section 4.1 of the Report to Inform Appropriate Assessment Screening, Annex E and elsewhere throughout the application documents benthic grab sampling will be preceded by video and camera stills imagery. RWE have committed to mitigation proposed for marine mammals in accordance with the relevant Irish guidance (DAHG, 2014), as agreed with NPWS. The extended pre-watch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FS007029. If calves have been spotted in the monitored zone the sound producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the monitored zone by the Marine Mammal Observer. The delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the area of possible disturbance. RWE are confident that these mitigation measures are robust and will be sufficient to confidently conclude no adverse effect on the integrity of the SAC. The 250 km buffer referred to in this submission represents the area of search for SACs for which cetaceans are qualifying interests for the purposes of the Report to Inform Appropriate Assessment Screening, Annex E. It is not representative of the area in which marine mammal species will experience effects from the proposed works, as impacts are limited to only a small area. Without mitigation in place, the Report to Inform Appropriate Assessment screening concludes that there is a possibility of marine mammals in close proximity to survey locations experiencing disturbance effects. RWE have committed to implementing mitigation as advised in DAHG, 2014. The Applicant's NIS, Annex F, concludes that with mitigation in place, there will be no significant effects on any cetacean species nor adverse effects on the integrity of any European site. No further mitigation or monitoring is therefore required.

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• The license states that: "If for any reason access by sea to the near-shore or intertidal sample locations is not possible, any temporary access arrangements or structures that are put in place to allow machinery access to the beach area will be prepared in consultation with an ecologist and the site should be fully reinstated post works." It is not clearly defined. Though this may seem like a minor point, access risks should be examined and outlined in the license application and should be appropriately assessed. No such examination appears to be included in the application. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). • The license states that: "Reinstatement of the intertidal habitat will be carried out to presurvey conditions. Spoil from boreholes would be contained and removed off site." It is not clearly defined, exactly how boreholes will be reinstated to their presurvey condition, while spoils are being removed off site. I assume that material removed from bore holes will be mixed, containing both surface material and deeper sediments. Deeper sediments can contain heavy metals hydrocarbons, nutrients and other potential contaminants. The developer does not appear to have defined how exactly they plan to deal with this issue to avoid contamination of local areas and species. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). • Annex E: Report to inform Appropriate Assessment Screening (4.1.3) states that: "The indicative locations of the survey areas which form the scope of the proposed works are shown in Figure 3 to Figure 7. The final geotechnical and ecological sampling locations and buoy deployment positions will be selected after a review of the most up to date geophysical data available in advance of selection of the sampling stations. The data will be reviewed for the presence of anomalies of potential anthropological origin and potential for ecological features such as subtidal reef. Locations will be micro-sited where necessary to avoid archaeological or ecological impacts. As such, no figure is provided for the	The Foreshore Licence application is seeking permission to deploy up to 10 Static Acoustic Monitoring stations in operation for up to 5 years, to collect data pre- during and postconstruction phases of the windfarm. These data can provide broadscale information on diel and seasonal changes in cetacean occurrence in the area during this period and are typically included in monitoring surveys. Similar approaches have been taken for monitoring cetaceans at windfarm sites on the east coast of Scotland, for example. RWE have committed to mitigation proposed for marine mammals in accordance with the appropriate Irish guidance (DAHG, 2014). DAHG (2014) states that while the use of PAM in Ireland is encouraged as a helpful and beneficial tool for detecting and monitoring certain cetacean species, the Department does not believe it is sufficiently developed to be regarded as the primary or sole monitoring approach for risk management purposes. Therefore, whilst PAM is likely to be used by the survey company appointed to undertake the works, in addition to marine mammal observers, conservatively the assessments as documented in the NIS submitted with the application have not relied on the use of PAM as mitigation. The applicant is confident in the conclusion of no adverse effect on the basis of no PAM being utilised. If they are deployed during the works, this will provide mitigation above and beyond that required to be confident of no adverse effect. The applicant notes that the modelling undertaken for Arklow Bank identified that PTS effects for any and all equipment listed would at most reach 15m from the source. Due to the uncertainties associated with underwater noise modelling and the nearfield behaviour of sound waves, it is considered likely that this equates to an effective PTS range of zero. As the respondent highlights elsewhere, the Marine Mammal Observers will provide sufficient confidence of the absence of harbour porpoise within this area to conclude no potential for an adverse effect on the SAC.

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benthic sampling locations, but taking a precautionary approach it has been assumed that samples could be taken anywhere across the Foreshore Licence application area.". The license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). • Choice of benthic grab methods is not clear and is of utmost importance in attaining correct data for the next stage of the appropriate assessment of the proposed wind park. Biological trawls are considerably more beneficial in some instances and a clear indication of what will and will not be discovered by these methods should be outlined. 4. Cumulative Impact: The current license application appropriate assessment fails to take into account properly or at all the cumulation of the impact of the project with the impact of other existing and/or approved projects contrary to Directive 2011/92/EU article 4(3) and Annex III. Granting of this license would be a breach of Directive 2011/92/EU article 4(4) by failing to ensure that the project was properly described in terms of cumulation of impacts. • The cumulative impact of the granting of multiple licenses in the area for surveys such as these will have a cumulative impact which has not been appropriately assessed. As such, granting of this license would constitute a breach of the habitats directive. • No cumulative assessment has been made of the very real possibility that two developers could be conducting similar site survey work including boreholes and cone penetration tests in the same area at the same time. • In combination effects the applicant only considers synchronous events and synchronous licenses/leases and do not give any consideration to prolonged repetitive surveying, dredging and noise in the area, impacted by past licenses/surveys, such as their own previous surveys as recently as 2019. In fact, it is not made clear in the application why repeated benthic grabs/trawls is required and may cause significant impact to benthic communities.	As stated in the supporting marine information for the Rockabill to Dalkey Island SAC4, artificial barriers (Target 1) refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range". As noted in the Report to Inform Appropriate Assessment, Annex E (paragraphs 6.2.15 et seq), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be injured by the surveys. No reef features of conservation importance are noted at the location of the proposed sampling sites. However, it cannot be discounted that this feature may exist elsewhere within the survey area and has not yet been mapped. Therefore, under the precautionary principle, without the use of mitigation measures, reef features of the Rockabill to Dalkey SAC were screened in for Stage 2 Appropriate Assessment Screening. Annex F, Applicant's NIS concludes that with the proposed mitigation in place no likely significant effect on reef features will occur. RWE maintains the conclusion that there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the mitigation measures in place as set out in section 4.4 of Annex F, the Applicant's NIS. As noted above it is stated in the supporting marine information for the Rockabill to Dalkey Island SAC[4], artificial barriers (Target 1) refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or

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Comments on Applicant's Responses to Public Submission – Public Submission No. 11 (Table 4.1) Remaining Risks/Lack of Robust Scientific Data In response to the lack of data regarding fish, particularly non-commercial variety, the Applicant states that the closest SAC for fish species are located 50km to the North of the proposed site. However, effects on non-commercial fish species (e.g. sprat, herring and sand eel), as well as commercial fish species, potentially have an indirect impact on bird SPAs, as well as cetaceans SACs. As the proposed development is within the foraging range of QI of SPAs (birds) SACs (cetaceans) this impact has not been adequately addressed. The Applicant states that "with the proposed mitigations in place, as specified in Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014) the Article 12 Assessment concludes that no marine mammals whose range may overlap the survey area will be impacted by the proposed marine survey". The observer disagrees with this statement and propose on the following basis (PTS and TTS calculations below) that Harbour Porpoises (possibly among other cetaceans/ Pinnipeds) will be harmed during the proposed works and that this will have a likely significant effect on the QI of the Rockabill to Dalkey Island SAC. The applicant states (Section 5.2.4) that: "The Southall et al 2007 guidance and thresholds for non-impulsive sounds have been used for this assessment as the more recent Southall et al, 2019 report does not include SPL peak for nonimpulsive sounds, instead they detail SELcum thresholds and it is not possible to make comparisons of different metrics. The use of Southall et al, 2007 in line with the DAHG, 2014 guidance." This statement is misleading as the noise sources within the auditory range of the marine mammals (e.g. harbour porpoises), i.e sub-bottom profiler (pinger) is considered as an impulsive noise source, not a non-impulsive noise source. Therefore, the Applicant should be using the most up to date methods (i.e. Southall et al. 2019) and SEL values.	will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range". As noted in the Report to Inform Appropriate Assessment, Annex E (paragraphs 6.2.15 et seq), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be injured by the surveys. **3. Unregulated Development Environment** RWE has included method statements within Section 2 of the Supporting Information Report and Section 4.2 of the Report to Inform Appropriate Assessment Screening, Annex E which provide a description of the proposed survey works. In all cases the maximum number of samples required have been stated to ensure a robust assessment is undertaken; subtidal benthic monitoring will involve video and camera stills imagery and grab sampling using a Van Veen or Day grab at 90 locations, together with up to 90 epibenthic trawls. Monitoring is proposed to be undertaken annually for two to three years prior to commencement of the construction of the wind farm and would comprise up to 90 grab samples and 90 epibenthic trawls in each annual campaign. The reference to grab sampling at 30 locations within the Supporting Information Section 1.5 relates to the previous Foreshore Licence Application (FS007029) and is included for information only. The geophysical and geotechnical survey boundaries are shown in Drawings 2 and 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but

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Effectiveness of Mitigation Measure (Monitored zone): The NPWS (2014) guidelines "Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters" is, as stated, a guidance document and in this case an outdated one. Regardless of the guidelines followed, it is on the onus of the Notice Party to carry out an Appropriate Assessment in compliance with the Habitats Directive and ensure that where a likely significant effect exists due to the proposed operations, that mitigation measures are put in place to eliminate that likely significant effect. If, after the application of mitigation measures a likely significant effect remains, as in this case, then the competent authority must reject the application. "Where reasonable scientific doubt remains as to the absence of adverse effects on the integrity of the site linked to the plan or project being considered, the competent authority must reject the application for authorisation." (Commission notice 7730, EC, 2020). The mitigation measures put in place to limit the effect on the harbour porpoise community (application of a Monitoring Zone) are inadequate to inhibit a LSE on the harbour porpoise community in the application area. In an NPWS report (Berrow et al. 2007), the authors state that: "*The ability to detect harbour porpoise visually at sea and thus the accuracy of density and abundance estimates is extremely dependent on sea-state." "Palka (1996) found that the sighting rates of this species decreased by 20% from Beaufort 0 to 1 and by 75% from Beaufort 0 to 2-3. We have shown the differences in abundance estimates with sea-state can vary as much as 100% between sea-state 0-1 and sea-state 2."* (Berrow, et al. 2007). Even with the use of Passive Acoustic Monitoring (PAM), it cannot detect silent animals and may miss animals whose vocalisations are highly directional (Verfuss et al. 2018). PAM efficacy can also be affected by factors such as rain and background noise, fog and surface sea state. The PAM mean effective detection radius (EDR) for harbour porpoise click sequences is 72m, beyond which detection probability drops significantly. At 500m, as is outlined by the Notice Party as the monitored zone, the detection probability using PAM at the edge of that zone is zero (Nuuttila et al. 2018). As the effective range of visual	also within the surrounding area to enable precautionary monitoring across the wider receiving environment and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east as shown in Drawing 6, Annex B. Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling locations will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives. This will provide a robust and informed sampling array which will avoid damage to sensitive habitats in line with current guidance and best practice for undertaking surveys. In accordance with the application as submitted, a grant of Licence will commit RWE to appointing an ecologist to supervise the works within the intertidal areas. The ecologist will undertake a pre-commencement walk-over survey to identify sensitive habitats. Access points and sampling locations will be micro-sited to avoid impacts on sensitive habitats. Reinstatement of the intertidal habitat will be carried out to pre-survey condition using standard practice. Pre application consultation with NPWS confirmed the appropriateness of mitigation measures proposed. There is a potential for localised disturbance of roosting birds within the intertidal areas should the works overlap temporally with their presence. Whilst the level of disturbance is not likely to lead to a significant effect on the conservation objectives of the South Dublin Bay and River Tolka SPA, such disturbance is to be avoided under the Birds Directive and the Wildlife Act 1976, as amended. Accordingly, and in accordance with the application as submitted, a Licence will be granted subject to conditions requiring the following avoidance measures:

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detection of Harbour Porpoise is limited to 266m the effectiveness of visual detection at 500m is also zero (Schartmann, 2019). Therefore, according to the scientific literature, in a sea of Beaufort scale 2-3, as is common in the license area throughout the year, the detection rate by visual and PAM would be ~25% (Berrow, et al. 2007) up to 266m and zero beyond that point. Therefore, there remains a likely significant effect of the onset of Permanent Threshold Shift (PTS) to a porpoise population in the area, which, given that the harbour porpoise uses sound to navigate, feed and breed, would result in a likely significant loss of the Rockabill to Dalkey Island SAC qualifying interest. PTS Quantitative Assessment: If we consider the worst-case scenario at shallow depths (5m) within the Rockabill to Dalkey Island SAC of noise sources 225dB (based on maximum amplitude of sub-bottom profiler - pinger) and 15kHz (lower typical range of frequency of sub-bottom profilers), then we can relatively easily estimate the Transmission Loss (TL) around the noise source (making a few assumptions; temperature 10ºC, salinity 35ppt, acidity 8pH), using the equation for cylindrical spreading (due to shallow depth and location of source on seabed): $Transmission\ Loss\ (TL) = 10Log10(r) + \alpha r\ [dB]$ Where; r= distance from source (assuming reference at 1m) α=absorption coefficient Though 15kHz is used in this calculation the applicant states that the operating frequency of the Subbottom Profiler can go down to 2kHz (Table 5 of Annex E), which would result in lower transmission losses and sound signals travelling longer distances. The absorption can be calculated as 1.496-2.03 dB/km, equating to a worst-case scenario (precautionary principle) of 1.496dB/km or 0.001496 dB/m (Fisher & Simmons, 1977). At 75 meters radius from the noise source, which is the effective threshold for PAM, the TL would calculate as 18.86dB, indicating an overall noise source	• The site investigation at Poolbeg will take place outside the period 1st Sept – 31st Mar) to avoid disturbance to over-wintering bird Qualifying Interests of SPA; • Activities will not be undertaken in close proximity to drift lines which represent an important food source for bird species; • An ecologist will be employed to identify whether roosting birds are present on the shore, and if roosting birds are present during intertidal works, the nearby sample stations shall be postponed until all the birds have departed, without provocation; • The ecologist will undertake a pre-commencement walk-over survey to identify any sensitive habitats, such as *Zostera noltii*, marram grass and annual vegetation drift lines, and to advise RWE on any potential access points to the intertidal area for plant and machinery which would avoid any such sensitive habitats; • If no such access route can be identified alternative options include lowering of equipment by crane from the Shelly Banks Road, construction of temporary bridges which span the sensitive habitat without making contact with it or the use of a barge to bring the equipment to the location by sea. Pre application consultation with NPWS confirmed the appropriateness of these avoidance measures in achieving the necessary scientific certainty as to the absence of significant effects on the European site, and in excluding significant disturbance of any of the bird species concerned. RWE have committed to appointing an ecologist to supervise the works, including access arrangements to the intertidal area at Poolbeg. The ecologist will undertake a precommencement walk-over survey to identify sensitive habitats and access points will be selected to avoid impacts on sensitive habitats. If no access route can be identified which avoids these areas, alternative arrangements include lowering equipment by crane from the Shelly Banks Road, construction of temporary bridges which span the sensitive habitat without making

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presence at 75m from the source of 206.14dB, which is still greater than the PTS of 202dB (Southall et al. 2019). In non-ideal sea state conditions, beyond 75m from the noise source, where PAM is effective, the effectiveness of visual detection would drop to 25%. The effective range of visual detection of Harbour Porpoise is limited to 266m (Schartmann, 2019). Assuming a harbour porpoise presence of 1.87 animals per km^2 (O'Brien & Berrow, 2016), the likely number of undetected harbour porpoises within the 500m Monitored Zone, assuming 100% detection within the 75m PAM zone1 would be: (0.20433*0.75*1.87)+(0.563398*1.87)=1.34 porpoises. Therefore, there is a likely significant effect on the porpoise population in the Rockabill to Dalkey Island SAC. Please note that in terms of statistical significance a value of 1.34 porpoises represents a 100% probability (p≥1.00), as a general rule statistical significance is considered for p≥0.05 (5% probability) or p≥0.01 (1% probability). As this is the case for every situation whereby this audible emission takes place, it seems likely, given the applicant's indicated number of noise sources planned that this number will be significantly higher (multiple times). Please note that this is not intended to be a full analysis but rather to highlight the remaining Risks/Lack of Robust Scientific Data. Please also note that these calculations assume the use of Passive Acoustic Monitoring (PAM) Devices, however, there is no indication by the applicant that PAM will be used to detect the presence of harbour porpoises prior to initiating a sound source, regardless of the sea state. <u>TTS Quantitative and Collision Risk Assessment:</u> Regarding the Temporary threshold shift (TTS), the Applicant indicates a TTS radius of 100m, which is completely out of sync with general consensus and values typically adopted by other renewable energy developers in the Irish Sea (e.g. Codling Wind Park (FS007045) and Arklow Bank 2 (FS007339), which are similar investigations. Codling Wind Park (license FS007045) use a 5km radius based on studies of mammal response to noise by Thompson et al. (2013). The Applicant in this case uses 100m based on the 'East Anglia modelling' study, which is neither relevant nor accurate to the license in question. This is addressed later in more detail in this document. The variance of this effective area of TTS across various license applicants in the Irish Sea (a variance of 50	contact with it or the use of a barge to bring the equipment to the location by sea. A borehole is a method of drilling into the ground or seabed to recover samples and enable downhole geotechnical testing to be complete. Samples will be removed from within the drill string for detailed offsite analysis. All the proposed geotechnical survey techniques are of small diameter and sampling locations are within a highly dynamic area with strong sea currents. The voids created by the borehole drill and vibrocorers (254mm and 150mm diameter respectively) will fill naturally immediately following the removal of the equipment, leaving only a minor impression on the seafloor, which will fully over subsequent tidal cycles. CPTs do not remove any material and the hole created by the penetration of the cone (up to 40mm diameter), will infill almost instantly upon removal of the equipment. The approach to selection of sampling locations using best available information at the time of survey provides a robust and informed sampling strategy in line with relevant guidance and best practice for surveys intended to avoid targeting habitats or features which would be sensitive to the effects of the survey. The ecological monitoring surveys which are proposed under this Foreshore Licence application are for the purposes of pre-construction monitoring against which to measure any change during the construction of the wind farm. The maximum scope of the ecological monitoring survey has been defined within the Supporting Information Report Section 2 and within the Report to Inform AA screening, Section 4.1. The scope of monitoring surveys has been defined in accordance with Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects (DCCAE, 2018). A broad suite of activities is included within the application and the final scope of ecological monitoring will be agreed in consultation with the appropriate statutory agency.

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to 100 times) highlights the lack of guidelines for developers and the unscientific basis for such predictions. For TTS Quantitative and Collision Risk Assessment the observer will use a 5km radius, being the more accurate prediction and based on observed species behaviour. A 5 km radius is accepted by the Applicant, which would encompass an area of 78.54 km^2. Assuming a worst-case scenario of a sound source within the Rockabill to Dalkey Island SAC, we would expect a porpoise presence of 1.87 animals per km^2. As a result, a TTS effect on up to 146.87 porpoises could be expected. Temporary threshold shift (temporary auditory deafness) in porpoise can cause severe disorientation and disable navigation, feeding and communication potential (porpoises use echolocation to navigate and find prey) (Miller & Wahlberg, 2013). This is akin to a 'flashbang grenade' to humans (Madhavan et al. 2018). Due to the busy shipping lane (Dublin Port) within the Rockabill to Dalkey Island SAC and the overlap with this 5km radius (worst case scenario), this could result in up to 146.87 porpoise collisions with vessels that are normally present in the shipping lane. This is likely an overestimation but would require more detailed shipping data to elucidate further probability data. Please note that this is not intended to be a full analysis but rather to highlight the remaining Risks/Lack of Robust Scientific Data. Regardless, it appears clear that a likely significant effect remains after the proposed mitigation measures are considered. This simple analytical quantitative analysis is beyond what was carried out by the Applicants in assessing the likely significant effect upon the European Protected Species and qualifying interest of Rockabill to Dalkey Island SAC, indicating that there Remains a Risks/Lack of Robust Scientific Data and Granting of this license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive') by failing to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. <u>Effect of Activities on SAC Conservation Objectives:</u> Harbour porpoise is the primary qualifying feature of the Rockabill to Dalkey Island SAC, 0km distance from the application area. Under Article 12 of Habitats Directive, Annex IV species are afforded strict protections throughout their range both inside and outside of their designated protected areas. Proposed	**4. Cumulative Impact** Section 7.4 of the Report to Inform Appropriate Assessment Screening provides a screening of projects and plans within a 30 km buffer of the Foreshore Licence area. Section 4.3 of the RWE's NIS provides the assessment for those projects screened in for in-combination assessment. Using the precautionary approach projects were screened in for further assessment where there was, in the absence of definitive timings, potential for overlap both temporally and spatially with the surveys subject to this application. Consideration was given to the likelihood for all projects to be undertaken sequentially or simultaneously. Further to these assessments, it was concluded that there will be no potential for adverse impacts on the integrity of the European sites concerned as a result of the project alone or in combination with other plans or projects. The Natura Impact Assessment of the surveys which were the subject of an earlier Foreshore Licence, FS007029 concluded that there was no potential for adverse effects on the integrity of the concerned European Sites to arise as a result if the proposed survey activities. The surveys which have been undertaken in 2021 under Foreshore Licence FS007029 include geophysical surveys, ecological grab sampling and the deployment of buoys for the collection of wind, wave and current data. No further works under FS007029 will be undertaken and therefore there is no potential for temporal overlap with the surveys proposed under this current licence application, nor residual effects which need to be assessed. The observations raised regarding "Article 4(3) and Annex III" and an alleged breach of "Article 4(4)" are not fully understood as those references do not appear to be to the Habitats Directive. Insofar as the reference is to the EIA Directive, the site investigations are not a project type to which that Directive applies. **<u>Comments on Applicant's Responses to Public Submission – Public Submission 11 (Refer to Table 4.1)</u>** **a) Remaining Risks/Lack of Robust Scientific Data**

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developments must also examine the likely significant effect in light of the conservation objectives of the Natura 2000 site. We contend that the license in question poses a likely significant effect in view of the Natura 2000 site objectives of the SAC and, therefore, contravenes Article 6(3) of the Habitats Directive. (Waddenzee ruling C-127/02, paragraph 39-44). Conservation objectives for Rockabill to Dalkey Island SAC include: *"Target 1 - Species range within the site should not be restricted by artificial barriers to site use".* Any barrier, including those of an audible nature, would contravene the site objectives. Though assessment of PTS for marine mammals is an important criterion, assessment of Temporary Threshold Shift (TTS) onset (i.e. the amplitude which temporary loss of hearing is induced) can also have a LSE effect on marine mammals and consequently on site conservation objectives. The TTS radius around the noise source will not only increase the probability of collision risk for harbour porpoises with vessels (see TTS Quantitative and Collision Risk Assessment, above) but also act as an artificial barrier to site use. Even beyond the range of the TTS the noise disturbance will likely inhibit the use of the area for harbour porpoises, which could have a LSE, particularly during calving and mating seasons, for which the Applicant did not include any mitigation measures. *"Target 2 - Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site".* The proposed activities are clearly in breach of this site objective and will "adversely effect" the harbour porpoise community at the site. Please note that this target does not state "will not kill or injure" but rather will not "adversely affect". Exclusion of the harbour porpoise by produced sound levels in and around the SAC, particularly during calving and mating season will have an adverse effect on the harbour porpoise community at the site. The Applicant does not discuss these conservation objectives or provide any contrary argument to those outlined here and, as such, does not provide	The potential effects on features of the Natura 2000 Sites located within the zone of influence of the proposed activities due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites have been considered in the Screening Assessment presented in Annex E. The area of direct habitat disturbance i.e. the footprint of the proposed activities, 0.004km^2. Temporary, localised increases in suspended sediment will result from some of the proposed activities, but will drop out of suspension rapidly and the effect will be negligible in the context of the highly dynamic baseline environment. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are therefore predicted. Issues relating to PTS are discussed in further detail below. A parametric SBP (pinger) is intended to be used during the geophysical survey, the Innomar Medium SES-2000 is indicative of this type of SBP, this is classed as non-impulsive parametric sound source in CSA (2020). *Effectiveness of Mitigation Measure (Monitored Zone)* The Report to Inform Appropriate Assessment, Annex E and the Applicant's NIS, Annex F follow the most recent available guidance (DAHG 2014) whilst also including updated thresholds in scientific literature e.g. Southall et al. (2019). RWE have committed to applying the mitigation as required under DAHG 2014. RWE maintains the conclusion that there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the outlined mitigation in place. RWE have committed to mitigation proposed for marine mammals in accordance with the appropriate Irish guidance (DAHG, 2014). DAHG, 2014 states that while the use of PAM in Ireland is encouraged as a helpful and beneficial tool for detecting and monitoring certain cetacean species, the Department does not believe it is sufficiently

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sufficient scientific evidence that it does not contravene these Natura 2000 site objectives. Given that a number of these activities relating to various renewable energy proposals could be undertaken within the Rockabill to Dalkey Island SAC and that a number of investigations have been permitted in the area since, and prior to, this application, the cumulative effects of this and other projects (not considered here), are likely to have a significant effect on the number of Harbour Porpoise in the area. The Applicant claims that "*noise associated with the proposed activities… will not result in a significant increase in vessel traffic normally active in the area*", however, no source or quantification, either in terms of amplitude or frequency band of the proposed background noise is provided. Therefore, this represents, once again, a Risks/Lack of Robust Scientific Data. Regardless, the background anthropogenic noise should be considered as a cumulative impact, for which the proposed development is adding to. This has not been considered, either qualitatively or quantitively and therefore, once again represents a Risks/Lack of Robust Scientific Data. The Applicant claims that the findings of their Annex F (the Applicant's NIS) indicate that "*any noise impacts on cetaceans and their prey would be short term, temporary and intermittent"*. I disagree and propose that the above calculations (see 'Effectiveness of Mitigation Measure (Monitored zone)', 'PTS Quantitative Assessment' and 'TTS Quantitative and Collision Risk Assessment') indicate that there remains a LSE of a permanent impact on the QI of the Rockabill to Dalkey Island SAC. **As the applicant provides no such detailed or quantitative assessment refuting these claims, the competent authority must reject the application for authorisation.** The Applicant claims that "*it is theoretically possible to convert between SPLrms and SELcum, however the conversion is based on a series of assumptions, which results in impact ranges which are so extremely conservative as to not provide anything meaningfully relevant to biological organisms".* As there is no reference to this statement provided, the observer will assume that this is just the opinion of the Applicant and maintain that this does not represent up-to-date	developed to be regarded as the primary or sole monitoring approach for risk management purposes. Therefore whilst PAM is likely to be used by the survey company appointed to undertake the works in addition to marine mammal observers, conservatively the assessments as documented in the Applicant's NIS Annex F have not relied on the use of PAM as mitigation. The Nuuttila et al (2018) reference is for CPODs, these are static PAM devices used in monitoring, not mitigation. PAM for mitigation would use different equipment and a different approach (e.g. towed hydrophone arrays). Therefore, the effective detection radius quoted in this submission is not applicable to this situation (i.e. PAM used in mitigation). RWE maintains that there is no risk of injury (physical or auditory) as a result of the proposed works (as presented within previous consultation responses and in line with other foreshore licence applications for similar works). Notwithstanding the lack of any injurious effects the applicant has implemented the best available mitigation measures in the industry to provide further certainty that there will be no adverse effects on the conservation objectives of the SAC. *PTS Quantitative Assessment* The sub bottom profiler intended to be used is a parametric SBP (pinger) with the Innomar Medium SES-2000 used as an indicative model which has source level 225 dB and 85-115 kHz. The parametric SBPs generate short, narrow-beam sound pulses (beamwidth 1 to 3.5°) at high frequencies and therefore are subject to high transmission loss and attenuation in sea water (Crocker & Frantantonio 2016 and Crocker et al. 2019) resulting in reduced impact range. Simple spherical spreading laws are therefore unlikely to be representative of how this sound source propagates at sea.

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international best practice. The currently provided calculations do not take a precautionary approach to species exposure levels. The Applicant states that "Additionally, studies (Au, 1993) have demonstrated that animals not directly facing the sound of source can be exposed to significantly quieter received sounds (3 – 10dB lower for an animal moving away compared to moving towards a noise source)". This may indeed be the case and yet the observer suggests that using SEL calculations (best practice) and detracting 10dB from those calculations would be a more appropriate approach and would still likely result in a more precautionary approach than that taken. However, the assumption that all species are fleeing during the initiation of sound exposure may not be justified either. The observer reiterates that granting of this license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive') by failing to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. The Applicant refers to "East Anglia Two which modelled drilling for monopiles" in their response to my observations. As this data was not provided, fully referenced nor freely available during the original consultation phase the basis for this argument does not allow for public participation in the process and as such contravenes the Aarhus Convention (Article 6(1)(b)), it should therefore be stricken from the considerations in the license application. The fact that the Applicant provides the report at this stage (stage 2) when public submissions are closed (to the general public) and the reference is embedded in a response to a single applicant does not ameliorate this issue. This "East Anglia study" is a modelling study for a different sound source, of different frequency and amplitude output, in a different location and depth and so is not relevant to this license application and relying on this data to justify the granting of current license application is invalid (this is further outlined overleaf). Therefore, given the lack of evidence presented in this application fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works and granting of this license would contravene article 6(3) of Directive 92/43/EEC. The Applicant states that:	It is unclear where the 75 m effective threshold from PAM mentioned in the submission has come from, as there is no reference cited. However, if this is based on e.g. Nuuttila et al (2018), the threshold would not be appropriate, as the PAM (CPOD) used in that study was for monitoring purposes, not mitigation. PAM used for monitoring purposes are very different from those used as mitigation measures (i.e. click detectors vs. broadband hydrophones) used in a different manner (e.g. static vs. towed) and for different purposes (i.e. monitoring vs. mitigation). Given the points above, the calculation is unlikely to be appropriate. The calculation of significance is fundamentally incorrect. 1.34 porpoise would not have a significance of p = 1. The hypothetical impact scenario outlined, at the very least, would need to be assessed against the impact at the population level, i.e. a number of animals representing the population / using the SAC. The hypothetical case presented here has simply and incorrectly concluded that, more than 1 porpoise disturbed is equal to a probability of (statistical significance of) 1. RWE maintains the conclusion that there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the mitigation measures in place as set out in section 4.4 of Annex F, the Applicant's NIS. *TTS Quantitative and Collision Risk Assessment* Whilst Codling have used a 5 km radius in their European Protected Species risk assessment document (March 2020), in line with Thompsen et al. (2013), this range informs the behavioural response ranges and not the TTS ranges, therefore the simple assessment presented in the response regarding TTS effect is incorrect in its assumptions. Codling present that the risk of TTS from geophysical and geotechnical as negligible and therefore no assessment of individuals is presented in their EPS document. As such, it can be seen that the assessment as presented for Dublin Array is consistent with

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"As noted in Annex E (paragraphs 6.2.15 et seq), there is no risk of hearing damage to marine mammals from the proposed Dublin Array site investigation works and any disturbance will occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few hours as the survey vessel undertakes work in that area, with impacts from the works not occurring within the full licensed area for the full duration of the works" The observer believes that considering the arguments made above (particularly see 'Effectiveness of Mitigation Measure (Monitored zone)', 'PTS Quantitative Assessment' and 'TTS Quantitative and Collision Risk Assessment'), this statement is not true and there remains a LSE on the QI of the Rockabill to Dalkey Island SAC and that the proposed license contravenes the site objectives of the Rockabill to Dalkey Island SAC. With regard to the 'East Anglia modelling' study; **this is a modelling study for a different sound source, of different frequency and amplitude output, in a different location and depth and so is not relevant to this license application** and relying on this data to justify the granting of current license application is invalid. For example, the 'East Anglia modelling' study states that "the water depths for the modelling locations considered for this study are all in excess of 45 m", whereas in most locations of sound sources in the proposed license application area are considerably less, which would have a significant impact on the spread and modelling method of the sound loss. The observer would welcome a more detailed study for the license area, wherein the sound loss is accurately modelled for the proposed area but relying on data from the East Anglia modelling is flawed. The Applicant states that: "the Article 12 Assessment presented in Appendix 4 of Arklow Bank's NIS concludes that the risk of injury or disturbance to all marine mammal species would be negligible from the geotechnical survey activities and that, in this respect, mitigation is not considered necessary." It should be noted that Arklow Bank's license application is not located in an SAC whose QI is a sound sensitive cetacean. In addition, if one superimposed	other projects, and that the number of individuals at risk of TTS would be substantially below 1 from these works. With the implementation of the mitigation as outlined in Annex F. the Applicant's NIS, this risk will be further reduced to negligible. TTS only affects a small notch of an individual's hearing and consequently will not alter the ability of the animal to hear and avoid vessels. It is important to note that this change in hearing occurs within the relevant frequency range, therefore the individual is not entirely deaf, which is a common misunderstanding. Notwithstanding the confirmation above that the risk of TTS is negligible, the applicant is unsure where the author of this submission has determined the statement of TTS resulting in "severe disorientation and disable navigation...". It appears that the statement is based on the reference of Miller and Walhberg (2013), however, this paper is a factual description of echolocation within harbour porpoise rather than having any discussion or study of the impacts from TTS. Were TTS to result in such severe impacts on harbour porpoise, studies on the onset of TTS would not be permitted for ethical reasons (for the same reason that no studies are permitted on PTS onset in marine mammals). Consequently, the further inference that TTS development is akin to a "flashbang" in humans is an extreme exaggeration of the potential consequences of TTS. RWE maintains the conclusion that there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the mitigation measures in place as set out in section 4.4 of Annex F, the Applicant's NIS. *Effect of Activities on SAC Conservation Objectives* As stated in the supporting marine information for the Rockabill to Dalkey Island SAC4, artificial barriers (Target 1) refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein.

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Arklow Bank's license application data/methods on this license application the outcome would be considerably different. This highlights not only the lack of consistency in approach but the lack of guidelines from the competent authority to provide a basis for best practice for developments in the foreshore. <u>Insufficient Evidence or Mitigation Measures</u> The Applicant states that "The effects of underwater noise on bird species are assessed within Section 6.2 and Section 6.3 of the Report to Inform Appropriate Assessment Screening. In-combination effects are assessed in Section 7.4 of the same." Section 6.2.38 of the 'Report to Inform Appropriate Assessment Screening' fails to present evidence and quantification of likely impact on protected diving bird species or the likely knock-on effect on SPAs in the foraging range of the license activities. How many birds and what species are likely to be foraging underwater in the vicinity of the license area for the period of which the license is active? How will this impact on the Conservation Objectives and QI of SPAs in the vicinity? Given the comments in Section 6.3.2 and Section 6.3.3 ('Report to Inform Appropriate Assessment Screening') regarding the impact on diving duck and tern populations can we have a guarantee that the survey will only be undertaken during the summer months? If not, then there remains an unassessed risk to the diving duck and tern populations. In section 7.4 the Applicant assesses the spatial in combination effects but provides no consideration to the temporal in combination effects. This is important as many of the conclusions of the AA are based on short duration of the studies. These in combination effects are not adequately addressed in the Applicant's NIS either. The Applicant states in relation to projects that may have in-combination effects "The projects considered include those applications but not yet determined and existing licences which have been granted but the associated activities not yet completed." However, no licenses that have been completed were considered. The temporal in-combination effects of multiple projects over a long duration in	It does not refer to short-term or temporary restriction of access or range". As noted in the Report to Inform Appropriate Assessment, Annex E (paragraphs 6.2.15 et seq), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be injured by the surveys. Impacts arising from potential disturbance effects have also been considered and assessed within Annex E and Annex F, the Applicant's NIS, alongside consideration of potential hearing impacts. As stated in the Applicant's NIS, Annex F, the survey vessels will be operated at slow speeds and will be stationary for a large portion of the time, the proposed works will not result in a significant increase in vessel traffic and therefore will not result in significant change to the existing level of collision risk to marine mammals. TTS results in a small "notch" in the hearing sensitivity of an individual covering a limited frequency range. TTS does not result in a broadscale change in the sensitivity of an individual's hearing capabilities. With noise from vessels having a broad frequency range, even if an animal is subject to TTS, this does not mean that the individual would no longer be able to detect vessels. Therefore, a potential TTS impact does not lead to any meaningful change in the collision risk for that individual. Furthermore, it is well documented that porpoise avoid vessels (e.g. Culloch et al. 2016, Benhemma-Le Gall et al. 2021). Considering the small impact zones predicted for TTS, as well as the relatively short-term (spatial and temporal) disturbance and the wider area available to

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the license area the negate "localised and temporary nature" of the proposed project. Such temporal in-combination effects as such fail to be considered. The Applicant states that "A comprehensive analysis of the potential impacts of the survey which could affect the integrity of sites has been undertaken as documented in Section 6 of Annex E, Report to Inform Appropriate Assessment Screening and Section 4 of Annex F, The Applicant's NIS. Whilst the exact sampling locations have not been determined at this time, their final locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling sites will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro-sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives." This is indicative of an Unregulated Development Environment; wherein insufficient oversight is being provided by the competent authority to protect subtidal and intertidal reefs and other features of public interest. The Applicant states that "RWE have committed to mitigation proposed for marine mammals in accordance with the relevant Irish guidance (DAHG, 2014), as agreed with NPWS. A qualified and experienced Marine Mammal Observer will monitor for the presence of marine mammals before the commencement of sound producing activities (pre-watch), during ramp up procedures and following breaks in sound output, as defined in DAHG, 2014. Sound producing activities will not commence until the monitored zone, as defined has been clear for the period required under the guidelines. The purpose of the pre-watch is to monitor for the presence of marine mammals within an area of 1,000m radial distance from the location of the sound source prior to commencement of sound producing activity. DAHG, 2014 guidance requires a prewatch period of at least 30 minutes. The extended pre-watch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FS007029. If calves have been spotted in the monitored zone the sound producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the monitored zone by	harbour porpoise, there is no likely significant effect on harbour porpoise as qualifying interests of the Rockabill to Dalkey SAC. RWE maintains the conclusion that, beyond reasonable scientific doubt, there is no potential for an adverse effect on the integrity of the SAC as a result of the proposed works with the mitigation measures in place as set out in section 4.4 of Annex F, the Applicant's NIS. Cumulative effects on the Rockabill to Dalkey Island SAC have been assessed with section 4.3 of the Applicant's NIS, Annex F, with no adverse effects predicted. The noise associated with large shipping vessels is widely considered unlikely to cause physical trauma but could make preferred habitats less attractive as a result of disturbance (habitat displacement, area avoidance) (Erbe et al., 2019). A study by Beck et al (2013) notes that marine mammals frequenting the Dublin Port shipping channel will be well accustomed to shipping noise. Ambient underwater noise in Dublin Bay has been estimated at around 113 dB by Beck et al. (2013) and by McKeown (2014). Given the existing vessel levels within the area the proposed site investigation will not result in a significant increase in vessel traffic and therefore no significant increase in vessel noise. The vessel noise associated with the proposed site investigation and monitoring activities will be short term, temporary and intermittent and no significant disturbance or displacement effects are expected for any of the marine mammal species identified within the baseline, no amendments are required to the conclusions of the Applicant's NIS. For the reasons stated previously (see response to this point on pages 58-60), RWE considers that it would be scientifically invalid to undertake an assessment of the impact of noise effects from geotechnical sampling the basis of modelling predicated on the conversion between SPLrms to SELcum. In light of the values presented elsewhere (e.g. Arklow Bank and East Anglia Two), the applicant considers that irrespective of whether modelling is undertaken or otherwise, it is beyond reasonable scientific doubt that

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the Marine Mammal Observer. The delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the area of possible disturbance." As outlined previously in this response the presence of MMO is inadequate to ensure no LSE on the QI of the Rockabill to Dalkey Island SAC and the DAHG, 2014 as an inadequate and outdated set of guidelines do not exempt the Applicant from carrying out an adequate and quantitative assessment of the impact on Annex IV species or QIs, as is the case here. <u>Unregulated Development Environment</u> The Applicant refers to "'Specific Conditions' which will be assessed by or on behalf of the Minister prior to the determination to grant the Licence", however, the public are not privy to those 'Specific Conditions' and do not have a participatory role in said 'Specific Conditions' nor can we determine from these 'Specific Conditions' if these 'Specific Conditions' are valid and provide a robust protection of these sites. As such this represents not only the possibility of an Unregulated Development Environment but also an inhibition to Public Participation and a contravention of the Aarhus Convention. The Applicant states that "Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment". However, the public have no visibility as to what the Applicant considers constitutes a suitable buffer distance from these hypothetical reefs, as such we are to rely on the applicant's potentially biased decision making to determine what is and what is not acceptable, with, it seems no oversight from the competent authority. This represents and Unregulated Development Environment. The Applicant states that: "As stated in the supporting marine information for the Rockabill to Dalkey Island SAC12, artificial barriers refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range". As noted in Annex E, Section 6.2 any disturbance associated with the proposed works which are the subject of this application will	the risk to harbour porpoise from the proposed site investigation and ecological monitoring is low and the activities will not lead to an adverse effect on the integrity of the SAC. To reiterate, the applicant has used SPLrms as this is the metric used for drilling sound source levels which are in the public domain. There are no monitored source levels reported in SEL and therefore any calculations using this metric would require conversions with the associated scientific limitations as discussed above. The applicant has noted the conclusions of the paper by Au (1993) to contextualise the precautionary values presented within the assessment and the associated risk to marine mammals. It would not be scientifically valid to assume a reduction in the source level based on this data however. The East Anglia Two study is publicly available (https://infrastructure.planninginspectorate.gov.uk/wpcontent/ipc/uploads/projects/EN010078/EN010078-001487-6.3.11.4%20EA2%20ES%20Appendix%2011.4%20Underwater%20Noise%20Assessment.pdf). The study assesses drilling associated with the installation of monopiles, which are a more intensive noise source than the small diameter bores which are the subject of this Foreshore Licence application. A further level of precaution arises from the water depths modelled for the East Anglia works which are greater than those in the proposed Foreshore Licence area, as sound propagates further in deeper water. The ranges for PTS and TTS predicted by the modelling for East Anglia Two were <100m, The geotechnical sampling which are the subject of this licence application will have a lesser impact. RWE maintain that, beyond reasonable scientific doubt, there is no risk of auditory injury as presented in Annex E, Report to Inform Appropriate Assessment and Annex F, the Applicant's NIS. The reference to Appendix 4 of Arklow Bank's NIS made in this submission relates to 220322 RWE Response to Public Consultation Final Issue, p37 and not to the assessments presented in Annex E,

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occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC." However, there is no apparent valid scientific reason for inclusion of the reference to a permanent barrier as a site Conservation Target. I put to you that an ongoing temporary barrier in the form of multiple sequential site investigations within the area of the Rockabill to Dalkey Island SAC will likely result in a risk to the site objectives, i.e. "To maintain the favourable conservation condition of Rockabill to Dalkey Island SAC harbour porpoise" and contravenes Target 2, i.e. "Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site." This target also specifically calls out underwater noise. Further to this, the development of a wind farm on this site (Kish/Bray Banks) would result in a permanent barrier to Harbour porpoises from sites within the Rockabill to Dalkey Island SAC, as studies have shown that, during construction "For harbour porpoises and harbour seals, the zone of audibility for pile-driving will most certainly extend well beyond 80 km, perhaps hundreds of kilometres from the source" and "Operational noise….may have the potential to disrupt behaviors over distances of several hundred meters from the pile" (Thomsen et al., 2006). Given the proximity of the Rockabill to Dalkey Island SAC to the proposed wind farm this should be of utmost concern. The deficiencies recently highlighted by Prof. Jane Stout in the "Reflect and Renew –A Review of the National Parks and Wildlife Service" should also be taken into account regarding the adequacies and independence of the Rockabill to Dalkey Island SAC site objectives. In addition there appears to be no site management plan present for this SAC, which should be in place before these large scale projects are approved for the area.	report to Inform Appropriate Assessment Screening nor Annex F, the Applicant's NIS. It relates to Arklow Bank's Article 12 Assessment of potential effects on European Protected Species, in which proximity of the proposed works to an SAC are of no direct relevance. The impacts of underwater noise on birds is presented in Section 6.2 of the Report to Inform Appropriate Assessment Screening, Annex E. Any impacts associated with site investigation and ecological monitoring activities will be limited in terms of duration and spatial extent. The foraging ranges provided by Woodward et al (2019) indicate there is a significant amount of alternative foraging habitat within each species-specific range which seabirds can exploit if they are disturbed temporarily from an area. Based on the above, there is no likelihood that a likely significant effect would result from the impact to the seabird species present at the time of surveys. Birds species which are likely to be most sensitive to underwater noise are those which forage underwater for extended periods of time. Other seabirds that may shallow dive, dip, dive or surface feed are less sensitive to underwater noise, due to the brevity of exposure time and sensitivity to disturbance (Furness et al., 2012, Fliessbach et al., 2019). Based on what is known about the physiology of hearing in birds it is suggested that they do not hear well underwater and, therefore, are unlikely to be impacted when diving. Anatomical studies of ear structure in diving birds suggests that there are adaptations for protection against the large pressure changes that may occur while diving, which may protect the ear from acoustic exposure (Dooling and Therrien, 2012). The potential for impacts from the surveys for bird species, which are qualifying interests of designated SPAs within the precautionary zone of influence of the proposed site investigation and ecological monitoring activities, were assessed within the Report to Inform Appropriate Assessment Screening, Annex E. The evidence presented there suggests that underwater noise is not likely to cause significant

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With regard to SAM deployment, and the timing and data acquisition of the same; it would provide poor quality, skewed scientific data to use SAM data following multiple noise producing investigations to indicate the presence or absence of cetacean numbers as an indication of mammal density at the site. If this were the case, this data would not be suitable for any future submission in assessing environmental impact of the area. "Article 4(3) and Annex III" and "Article 4(4)" refers to Directive 2011/92/EU. The submission has now been amended to reflect this. All previous submission statements stand and lack of further response in this document does not constitute an acceptance of the Applicant's responses to concerns raised. References DAHG (2014), Department of Heritage & Local Government, 'Code of Practice for the Protection of Marine Mammals during Acoustic Seafloor Surveys in Irish Waters', Available at: https://www.npws.ie/marine/best-practice-guidelines Southall, B.L. et al. (2007) Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations, Aquatic Mammals, Volume 33, Number 4, 2007 ISSN 0167-5427. Southall, B.L. et al. (2019), Marine Mammal Noise Exposure Criteria:Updated Scientific Recommendations for Residual Hearing Effects, Aquatic Mammals 2019, 45(2), 125-232, DOI 10.1578/AM.45.2.2019.125 O' Brien, J. & Berrow, S. (2016), Harbour porpoise surveys in Rockabill to Dalkey Island SAC, Report to the National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Irish Whale and Dolphin Group.	effects to bird species as disturbance would be shortterm, intermittent and transient. The South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA were screened in to Stage 2 Appropriate Assessment and are considered with in the Applicant's NIS, Annex F. Both sites are in close proximity to a high amenity area, therefore qualifying species would be accustomed to a high level of noise and visual disturbance. The nature of the proposed survey activities will be short term, temporary and localised. As a precautionary measure the intertidal survey at the Poolbeg landfall is proposed to be carried out outside the over-wintering period (Sept – Mar inclusive). Impacts arising from the sub-tidal site investigations and surveys are de minimis. With the mitigation set out in Section 4.4 of the Applicant's NIS in relation to inter-tidal activities no likely significant effect on the qualifying features of South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA are predicted. Section 7.4 of Annex E, Report to Inform Appropriate Assessment Screening provides a screening of projects and plans within a precautionary 30 km buffer of the Foreshore Licence area. Section 4.3 of Annex F, Applicant's NIS provides the assessment for those projects screened in for combination assessment. Using the precautionary approach projects were screened in for further assessment where there was potential for overlap both temporally and/or spatially with the surveys subject to this application. The in-combination assessment considers the effects should the works occur simultaneously or sequentially and concludes that in neither scenario adverse effects upon the European Site's integrity will occur as a result of the in-combination proposed works. The projects considered include those applications submitted but not yet determined and existing licences which have been granted but the associated activities not yet completed. The Minister has access to the plans and projects of relevance to the in-combination assessment of

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Verfuss et al. (2018), Comparing methods suitable for monitoring marine mammals in low visibility conditions during seismic surveys, Marine Pollution Bulletin 126:1-18, DOI: 10.1016/j.marpolbul.2017.10.034 Nuuttila et al. (2018), Estimating effective detection area of static passive acoustic data loggers from playback experiments with cetacean vocalisations, Ecology & Evolution, Volume 9, Issue 12, pp. 2362-2371, https://doi.org/10.1111/2041-210X.13097 Schartmann (2019), Activity pattern of the harbour porpoise Phocoena phocoena in the coastal waters of Fyn (Denmark), Universitat Rostock, available at: https://www.thuenen.de/media/institute/of/Aktuelles_und_Service/Lehre-Abschlussarbeiten/Schartmann_2019_Master_Activity_pattern_of_the_harbour_porpoise.pdf Fisher, F. H. & Simmons, V. P. (1977), Sound absorption in sea water, The Journal of the Acoustical Society of America 62, 558; https://doi.org/10.1121/1.381574 Thompson, P.M., Brookes, K.L., Graham, I.M., Barton, T.R., Needham, K., Bradbury, G. and Merchant,N.D. (2013). Short-term disturbance by a commercial two-dimensional seismic survey does not lead to long-term displacement of harbour porpoises. Proceedings of the Royal Society B 280: 20132001. Miller, L. A., Wahlberg, M. (2013), Echolocation by the harbor porpoise: Life in coastal waters, Front. Physiol. Vol 4, Art.52, https://doi.org/10.3389/fphys.2013.00052 Madhavan, P., Srinivansan, R., Analysis of the Startle Response to Flashbang Grenades, US Institute for Defense Analyses, IDA Document D-8945, Available at: https://www.ida.org/-/media/feature/publications/a/an/analysis-of-the-startle-response-to-flashbang-grenades/d-8945.ashx	this application to inform his Stage 2 Appropriate Assessment, including applications such as FS007134, ESB Wind Development Limited, Site Investigations at Sea Stacks Offshore Wind off Dublin and Wicklow, which have been submitted since the FS007188 application was made. The Natura Impact Assessment of the surveys which were the subject of an earlier Foreshore Licence, FS007029 concluded that there was no potential for adverse effects on the integrity of the concerned European Sites to arise as a result if the proposed survey activities. The surveys which have been undertaken in 2021 under Foreshore Licence FS007029 include geophysical surveys, ecological grab sampling and the deployment of buoys for the collection of wind, wave and current data. No further works under FS007029 will be undertaken and therefore there is no potential for temporal overlap with the surveys proposed under this current licence application, nor residual effects to be assessed. Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling locations will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives. This will provide a robust and informed sampling array which will avoid damage to sensitive habitats in line with current guidance and best practice for undertaking surveys. RWE have committed to mitigation proposed for marine mammals in accordance with the relevant Irish guidance (DAHG, 2014), as agreed with NPWS. The extended pre-watch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FS007029. If calves have been spotted in the monitored zone the sound producing activity shall not commence until at least 45 minutes have elapsed with no marine

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Thomsen et al. (2006), Effects of offshore wind farm noise on marine mammals and fish, Copies available from: www.offshorewind.co.uk • The AA does not adequately assess or quantify the effect of the proposed development on the Annex IV family of Phocidae (Grey seals) at Lambay Island SAC, using figures and seal populations relevant to the SAC. • The AA does not adequately assess or quantify the effect of the proposed development on Risso's dolphin or leatherback turtle, which have been recorded in the area (Arklow Bank Dumping at Sea EPA License). These European cetacean species are listed on Annex IV of the EU Habitats Directive (92/43) as species requiring strict protection. • The AA does not adequately assess or quantify the effect of the proposed development on Tope shark (Galeorhinus galeus), which is of particular importance as the proposed development area is a known Tope shark nursery area (Ellis et al. (2012). Their long-life span and low birth rate make them particularly susceptible to species decline. Threats to the tope shark include habitat degradation in nursery areas, which makes the proposed license particularly precarious to them. Tope shark is listed under the IUCN Red List status as "vulnerable" and is protected under the Northern Ireland Priority Species List. The tope shark's range is large and are known to migrate to Strangford and Carlingford Loughs. • The AA does not adequately assess or quantify the effect of the proposed development on how seabed vibrations affect bottom dwelling fish or the hearing capabilities of sharks, rays and skates and invertebrates. Disturbance to the seabed equates to habitat loss for the angel shark (Squatina squatina) is a bottom-dwelling shark that spends most of the day buried in the sand. The angel shark has been declared extinct in the North Sea and locally extinct over part of its former range in the Irish Sea. Threats to the angel shark include being killed as bycatch and habitat degradation. The angel shark's long life span and low birth rate make it particularly susceptible to species decline. The angel shark is protected by the Northern Ireland Priority Species List, is listed on the Irish Red	mammals detected within the monitored zone by the Marine Mammal Observer. The delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the area of possible disturbance. RWE are confident that these mitigation measures are robust and will be sufficient to confidently conclude no adverse effect on the integrity of the SAC. *Unregulated Development Environment* This comment appears to be addressed to the Minister's assessment, determination and identification of conditions which may be considered for inclusion in any Foreshore Licence granted arising from this application. It is not appropriate for RWE to comment on the decision-making process undertaken by the Minister. Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling locations will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives. This will provide a robust and informed sampling array which will avoid damage to sensitive habitats in line with current guidance and best practice for undertaking surveys. As stated in the supporting marine information for the Rockabill to Dalkey Island SAC4, artificial barriers (Target 1) refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range". RWE are confident there will be no permanent exclusion of harbour porpoise from the site. The conservation objectives are very clear in

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Data Book as critically endangered. The angel shark is also recognized by the IUCN and OSPAR in Ireland. • The AA does not adequately assess or quantify the effect of the proposed development on the undulate ray (Raja undulata), which is a member of the skate and ray family. The flat, bottom dwelling fish is found throughout the Irish Sea. The undulate ray is listed on the IUCN Red List as endangered, recognised by the IUCN in Ireland, listed as UK Priority Species and protected under the Northern Ireland Priority Species List. The undulate ray is particularly sensitive to habitat degradation from human activity. • The application area is a nursery ground for spotted ray, thornback ray and the AA does not Adequately assess or quantify the effect of the proposed development. • The AA does not adequately assess or quantify the effect of the proposed development on the Sandeel. Sandeel are an exceptionally important source of nutrition for local seabird colonies. Though it is accepted that many areas of the proposed license area the sediment is course (not all areas) and sediment will not remain suspended for long, the proposed activities will result in significant depth of local smothering of sandeel and other benthic communities. No assessment or quantification of this aspect of the plan has been presented in the appropriate assessment. A development of the proposed size, combined with the cumulative impacts of previous and current developments, would result in a prolonged recovery period for the sandeel, as the license area is a known spawning ground for sandeel (Ellis et al. 2012). Sandeels live on the seabed in this area and the proposed development represents a real threat to the sandeel and their predators. Sandeels are keystone species and sandeel abundance have been shown to have direct effect on some seabird population and the breeding success of kittiwakes (redlisted), terns (amber), fulmars (amber listed) and shags (amber listed). Sandeels are part of many food webs for other fish species and seabirds. No assessment of the indirect effects of this smothering on Annex I habitats within SACs or birds from local SPAs has been carried out by the developer. Sandeel are listed on the IUCN red list as a threatened species, it is on the UK BAP priority species list and the Northern Ireland priority species list.	only referring to permanent exclusion and not short term, temporary impacts which is the worst case impact for this survey. As noted in the Report to Inform Appropriate Assessment, Annex E (paragraphs 6.2.15 et seq), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC and with the mitigation proposed in Section 4.4. of the Applicant's NIS, no adverse effect on the harbour porpoise community at the site. A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended, and the associated consent framework. The development consent application for the proposed wind farm will be subject to an independent environmental impact assessment by An Bord Pleanála under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process. Despite not being relevant to this Foreshore Licence Application for site investigation and ecological monitoring, it should be clearly noted that the values presented in the submission for disturbance to harbour porpoise from piling activity i.e. "beyond 80km" is based on old data and fails to consider the extensive recent data sources demonstrating that pile driving only affects porpoise distribution at ranges to 15 - 26km (e.g. Brandt et al. 2011; JNCC, NE & DAERA, 2020). The Foreshore Licence application requests permission for the deployment of up to 10 Static Acoustic Monitoring stations in operation for up to 5 years, to collect data pre- during and post-construction

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• The AA does not adequately assess or quantify the effect of the proposed development on the European eel (Anguilla Anguilla). It is expected that the proposed activities will result in significant depth of local smothering of European eel and other benthic communities. No assessment or quantification of this aspect of the plan has been presented in the appropriate assessment. A development of the proposed size, • combined with the cumulative impacts of previous and current developments, would result in a prolonged recovery period for the European eel, as the license area is a known spawning ground for European eels. European eels live and spawn on the seabed in this area and the proposed development represents a real threat to the European eels and their predators. European eels feed off molluscs and crustaceans which will be in decline as the seabed will have been disturbed. European eel is critically endangered and the numbers of juvenile eels reaching the coast have declined in recent years due to barriers to migration and habitat loss. This proposed development will add to the habitat loss and migration barriers of this endangered species and prevent them from reproducing. They are sensitive to sound and vibration. They also have swim bladders and underwater sound pollution significantly affects the behaviour of juvenile eels in as they become disorientated and fall subject to prey, thus reducing the number of their population. European eels are listed on the Irish Red Data Book listed as critically endangered and recognised by the IUCN and OSPAR in Ireland. • The AA does not adequately assess or quantify the effect of the proposed development on the Basking Sharks (Cetorhinus maximus). Sightings data collected by the Marine Conservation Society (Bloomfield and Solandt, 2008) suggests that the waters in the vicinity of Kish Bank is an area of regular sightings and activity for Basking Sharks. Basking Sharks are endangered and recognised by the IUCN and OSPAR in Ireland. Their slow growth and reproductive rates make them particularly vulnerable to population decline and threats include collision with boats and habitat disturbance. • The AA does not adequately assess or quantify the effect of the proposed development on Herring (clupeiformes) are listed in the Habitats Directive Annex	phases of the windfarm. These data can provide broadscale information on diel and seasonal changes in cetacean occurrence in the area during this period and are typically included in monitoring strategies. Similar approaches have been taken for monitoring cetaceans at windfarm sites on the east coast of Scotland, for example. As reported in Annex E of the application documents, Report to Inform Appropriate Assessment Screening, paragraph 3.3.6 designated sites, where seals are qualifying interests, which are within foraging range of the Foreshore Licence area for these species were scoped into the screening assessment. Foraging ranges for harbour seal 120 km (SMRU, 2011) and for grey seal 145 km (Thompson et al. 1996). This resulted in two grey seal SACs within foraging range: Lambay Island SAC and the Saltee Islands SAC and two harbour seal SACs, Lambay Island SAC and the Slaney River Valley SAC. Both species as qualifying features of Lambay Island SAC were screened in for Stage 2, Appropriate Assessment. The potential for disturbance to the seal species is limited to the presence of vessels for the proposed ecological monitoring and underwater noise generated by acoustic surveys. The geotechnical and geophysical survey activities will not overlap with the breeding and haul out sites within Lambay Island SAC and no pathway exists to disturb seals on land or prevent access to breeding, resting or moulting sites. Disturbance effects will be short term, temporary and intermittent and will not lead to significant effects on the Conservation Objectives for grey seal and harbour seal at Lambay Island SAC. Risso's dolphin or leatherback turtle are not considered within the Stage one screening or stage two AA as they are not designated features of any sites and therefore are not considered within the AA process. Both species were considered as part of the Article 12 assessment for relevant Annex IV species, Section 5 of Annex F, the Applicant's NIS.

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II. In Kish sprat were the most abundant fish in terms of numbers caught followed by herring and poor cod. Annex II Herring are hearing specialist species of highly sensitive with mechanisms that couple the swim bladder in inner ear. Seabed removal and suspended sediment would lead to loss of habitat preventing the development of juveniles. Noise vibration can affect juveniles, particularly noise sensitive species such as herring and noise generalists such as cod and cause physiological stress. The current application area is a nursery and a spawning ground for cod. The proposed development would have a negative impact on the development of juveniles of cod • Nursery grounds are sites where juveniles occur at higher densities, have reduced rates of predation and have faster growth rates than in other habitats. Seabed disturbance is anticipated to have a potential impact on the nursery grounds where seabed removal and the suspended sediment plume can potentially lead to a loss of habitat, preventing the development of juveniles. Noise and vibration caused by seabed disturbance can also potentially affect juveniles within the localised area, particularly noise sensitive species such as cod (vulnerable), potentially causing physiological stress. • cod which are hearing generalists where the proposed development is the cod (*Gadus morhua*) is a member of the gadoid fish family. The cod is protected under the Northern Ireland Priority Species List because it meets the following criteria: IUCN Red List status is "vulnerable;" o Listed as a UK priority species; o Declining population. o The cod is also recognized by OSPAR in Ireland. • The AA does not adequately assess or quantify the effect of the proposed development Spawning grounds which are recorded within the vicinity of the application area for the key commercial species; spawning grounds are located for the following species: i. Cod; ii. Sandeel; iii. Whiting; iv. Plaice; v. Sole; vi. Ling; and vii. Mackerel. • The AA does not adequately assess or quantify the effect of the proposed development nursery grounds which are located withing the application area for species such as cod, anglerfish, tope shark, spotted ray and whiting.	Tope Shark is not a feature of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore is not considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report. Angel Shark is not a feature of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore is not considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report. Undulate ray, spotted ray and thornback ray are not features of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore are not considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report. Sandeel is not a designated feature of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore is not considered within the Appropriate Assessment process. Annex E, Report to Inform Appropriate Assessment concludes that any disturbance to prey species will be short term, temporary and over a negligible footprint and that therefore no potential exists for consequent significant effects to habitats or species, including marine mammals and seabirds which are features of Natura 2000 sites. No SACs for migratory fish species lie within the Zone of Influence of the proposed site investigation or ecological monitoring activities. Annex E, Report to Inform Appropriate Assessment Screening

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• The AA does not adequately assess or quantify the effect of the proposed development on Annex IV Animals and plant species of community interest in need of strict protection (from Habitat Directive) Sturgeons Annex IV of Habitat Directive (sturgeons are bony fish) and the last sturgeon was identified in the application area and the marlin mapped it in the application area also (here). • AA does not adequately assess or quantify the effect of the proposed development as a spawning ground for plaice sole; ling; mackerel all which are will be affected. • A number of migratory fish are also known to utilise the rivers and the coastal waters of the east coast of Ireland and hence have the potential to migrate through the general area of the application. These species include Atlantic salmon (*Salmo salar*), trout (*Salmo trutta*), European eel (*Anguilla anguilla*), sea lamprey (*Petromyzon marinus*), European sturgeon (*Acipenser sturio*), twaite shad (*Alosa fallax*) and allis shad (*Alosa alosa*). AA does not adequately assess or quantify the effect of the proposed development on the Atlantic salmon (*Salmon salar*), which is a member of the Salmonidae family. Threats to the Atlantic salmon are habitat degradation and the creation of barriers to migration which will most likely result from this proposed development. The Atlantic salmon is protected under the Northern Ireland Priority Species List because it meets the following criteria: o Declining population; o Listed in Annexes II and V of the Habitats Directive • The potential effects of the proposed disturbance to the seabed are likely to interact with spawning grounds to generate a significant impact due to suspended sediment and seabed disturbance. Therefore, the potential effects of the proposed seabed disturbance are likely to interact with nursery grounds to generate a significant impact. • AA does not adequately assess or quantify the effect of the proposed development potential impacts associated with fisheries relate to habitat removal caused by seabed disturbance and the associated release of the suspended sediment plume, potentially leading to displacement of fish in the vicinity of the sediment plume area. Noise and vibration caused by seabed levelling is also	considers potential for impact on migratory fish species which may be present within the licence area on migration. The screening assessment reported in Annex E includes an assessment of effects on fish groups both with and without swim bladders and concludes that even for the most sensitive fish species (those with swim bladders involved in hearing) there is no risk of mortality from underwater noise effects. Some localised, temporary and intermittent disturbance and displacement of fish (prey species and migratory species on passage) is possible in the locality of the works, however this is not expected to result in significant effects. Basking Shark is not a designated feature of any designated site within the zone of influence of the proposed site investigation and ecological monitoring and therefore is not considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report. The only clupeiformes listed in Annex II of the Habitats Directive are the shad genus, *Alosa* spp. Herring is not included in any of the Annexes within the Habitats Directive and therefore has not been considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report. Section 4.8 of Annex C, EIA Screening and Environmental Report includes consideration of the effects of the proposed site investigation and ecological monitoring on fish and shellfish species, including spawning and nursery grounds in the vicinity of the proposed works. The environmental appraisal concludes that any sediment mobilised during the site investigation and surveys will settle quickly in the immediate vicinity of the sampling location. As there will be no significant impact on the seabed from the proposed works there is no

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anticipated to impact upon fish species in the localised area, particularly noise specialists such as cod and herring, which are relatively sensitive to sound. • AA does not adequately assess or quantify the effect of the proposed development the food chain. • Benthic flora and fauna are anticipated to be directly impacted by seabed disturbance. Habitat removal will result in the loss of benthic communities within the application area including the removal of both infauna and epifauna. Potential impacts on benthic communities will also have secondary impacts on species which prey upon benthic invertebrates further up the food chain such as eels. Sandeels are keystone species found on codling sand bank and sandeel abundance have been shown to have direct effect on some seabird population and the breeding success of kittiwakes (red listed), terns (amber), fulmars (amber listed) and shags (amber listed). Sandeels are part of many food webs for other fish species and seabird • AA does not adequately assess or quantify the effect of the proposed development on the Annex IV atheriniformes Ray finned fish *Atherina presbyter* sand smelt (bony fish) listed in the Habitat Directive and goby fish listed in Annex II of habitats directive. • AA does not adequately assess or quantify the effect of the proposed development the emission of methane gas as a result of working or being in the vicinity of the application area due to the known kish bank reserves in the application area. • The Habitats Directive and OSPAR are intended to protect species that are at risk of Extinction; they protect the habitat in which they exist. The application area is the habitat of threatened, endangered and critically endangered species and the AA does not adequately assess this. This proposed development should be prevented under the Wildlife (Ireland) Acts, 1976 & 2000 as "wilful interferences with the breeding place of a protected species." In order to fulfil Ireland's obligations under the Habitats Directive, OSPAR, and its own laws, the proposed development should be declined as it's AA does not adequately assess or quantify the effect of the proposed development.	likely consequent impact on fish or shellfish populations, including those species that use the area as spawning or nursery grounds. Cod is not included in any of the Annexes within the Habitats Directive and therefore has not been considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report. Cod, sandeel, whiting, plaice, sole, ling and mackerel are not included in any of the Annexes within the Habitats Directive and therefore has not been considered within the Appropriate Assessment process. The appraisal of environmental effects on fish and shellfish species is presented in Annex C of the application documents, EIA Screening and Environmental Report. Section 4.8 of Annex C, EIA Screening and Environmental Report includes consideration of the effects of the proposed site investigation and ecological monitoring on fish and shellfish species, including spawning and nursery grounds in the vicinity of the proposed works. The environmental appraisal concludes that any sediment mobilised during the site investigation and surveys will settle quickly in the immediate vicinity of the sampling location. As there will be no significant impact on the seabed from the proposed works there is no likely consequent impact on fish or shellfish populations, including those species that use the area as spawning or nursery grounds. Annex E, Report to Inform Appropriate Assessment Screening considers those species which are listed in Annex I or II of the Habitats Directive which are qualifying interests of designated sites within the zone of influence of the proposed site investigation and monitoring surveys.

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• The AA does not adequately assess or quantify the effect of the proposed development on the Allis shad (*Alosa alosa*) is a member of the herring family. The fish lives in coastal waters and estuaries for most of its life but migrates into rivers to spawn. Threats to the Allis shad include the construction in their migratory paths, habitat degradation and water pollution, all of which will result from this proposed development. The Allis shad is listed under the Northern Ireland Priority List because it meets the following criteria: o Listed as a UK priority species; o Irish Red Data Book classified as vulnerable the Allis shad is also recognized by the Habitats Directive and OSPAR. o The twaite shad (scientific name: *Alosa fallax*) is a member of the herring family, similar in appearance to the Allis shad. Spending most of its life in coastal waters, the fish migrates upstream in the spring to spawn. Like the Allis shad, threats to the twaite shad include disruption to the seabed and other migratory route obstructions, habitat degradation, o pollution all of which will result from the proposed development because it meets the following criteria: Listed as a UK priority species Irish Red Data Book classified as vulnerable The twaite shad is also recognised by the Habitats Directive and IUCN in Ireland. The twaite shad is protected under the Northern Ireland Priority Species List.	An appraisal of environmental effects on fish and shellfish species, including those not listed within Annex I or II of the Habitats Directive, is presented in Annex C of the application documents, EIA Screening and Environmental Report. Plaice, sole, ling and mackerel are not included in any of the Annexes within the Habitats Directive and therefore has not been considered within the Appropriate Assessment process. Annex C of the application documents, EIA Screening and Environmental Report identifies seven species of fish which are known to spawn in the vicinity of the proposed Foreshore Licence area, namely lemon sole, sprat, plaice, sole, whiting, cod and the Norwegian lobster. The environmental appraisal concludes there is unlikely to be significant effects on these species. Migratory fish have been subject to screening assessment the results of which are presented in Annex E, Report to Inform Appropriate Assessment Screening, specifically within sections 5.3, and 6.2. Atlantic Salmon (*Salmo salar*) have been identified as a designated feature at two sites, the River Boyne and River Blackwater SAC (50km north of the geophysical survey boundary), and the Slaney River Valley SAC (95 km to the south of the geophysical survey boundary). Assessments have been carried out in full with relevance to these designated sites and have concluded that there will be no significant effects on migratory species on passage. Annex C of the application documents, EIA Screening and Environmental Report identifies seven species of fish which are known to spawn in the vicinity of the proposed Foreshore Licence area, namely lemon sole, sprat, plaice, sole, whiting, cod and the Norwegian lobster. Spawning grounds for all seven species are widely found within local and regional areas. Due to the limited spatial extent of disturbance associated with the proposed surveys there will be no discernible loss of spawning area for these species. The environmental appraisal

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	therefore concludes there is unlikely to be significant effects on these species. Effects on relevant fish species, which are qualifying features of designated sites within the zone of influence of the proposed site investigation and ecological surveys are presented in Annex E, Report to Inform Appropriate Assessment Screening. The potential effects on fish species which are considered in the screening assessment include habitat disturbance, including effects of increased suspended sediments, and underwater noise, see Table 4 of Annex E. Seabed levelling is not proposed and is not the subject of this Foreshore Licence application. Effects on the prey species are discussed throughout the screening assessment presented in Annex E, Report to Inform Appropriate Assessment Screening. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat or prey species are predicted. The potential effects on features of the Natura 2000 Sites located within the zone of influence of the proposed activities due to possible impacts upon surrounding areas which provide supporting habitat of importance to the features of those sites have been considered in the Screening Assessment presented in Annex E. The area of direct habitat disturbance i.e. the footprint of the proposed activities, 0.004km^2. Temporary, localised increases in suspended sediment will result from some of the proposed activities, but will drop out of suspension rapidly and the effect will be negligible in the context of the highly dynamic baseline environment. No significant effects on the qualifying interests of the designated sites as a consequence of effects on supporting habitat are therefore predicted. No SACs for goby species lie within the Zone of Influence of the proposed site investigation or ecological monitoring activities. Annex E, Report to Inform Appropriate Assessment Screening considers potential for impact on migratory fish species which may be present

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	within the licence area on migration. No likely significant effects are predicted due to the limited scale and duration of the proposed activities. Section 4.8 of Annex C, EIA Screening and Environmental Report includes consideration of the effects of the proposed site investigation and ecological monitoring on fish and shellfish species. The environmental appraisal concludes that any sediment mobilised during the site investigation and surveys will settle quickly in the immediate vicinity of the sampling location. As there will be no significant impact on the seabed from the proposed works there is no likely consequent impact on fish or shellfish populations. The methane-derived seep mounds associated with the Kish Bank Basin are located some distance to the north and east of the Kish Bank, well outside the area where geotechnical investigations are proposed. Geophysical data collected by the project in 2021 does not identify the presence of "methane reserves" on the Kish Bank. The Report to Inform Appropriate Assessment Screening, Annex E, considers all SACs and SPAs within a precautionary zone of influence of the proposed site investigation and monitoring surveys. The likelihood of significant effects on those sites screened in for Appropriate Assessment is reported in Annex F, the Applicants NIS, section 5 of which includes an assessment for relevant Annex IV species. The Report to Inform Appropriate Assessment Screening, Annex E, considers potential for impact on migratory fish species on passage, there are no SACs designated for migratory fish species within the zone of influence of the site investigation and monitoring activities. Localised, temporary and intermittent disturbance and displacement of fish (prey species and migratory species on passage) is possible in the immediate vicinity of the activities, however due to the scale and limited duration of the surveys this is not expected to result in significant effects.

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Submission 19 **South East Coastal Protection Alliance DAC** This submission is on behalf of South East Coastal Protection Alliance (SECPA) to express their concern regarding the development of the Dublin Array Wind Farm on sand banks off the east coast of Ireland. SECPA believe that the development of this wind farm on the sand banks will have an entirely negative effect on the sand bank itself and the proximate coastline. While SECPA support the concept of wind energy and the opportunities it may bring, they believe that the proposal dating from the mid-1990s to develop offshore wind arrays on Ireland's near shore sandbank habitats is outdated in view of more recent engineering developments in floating turbine technology and the ongoing recognition of the importance of the sandbank habitat for marine life and as a feeding ground for birds and also their contribution to the natural supply of replacement sand for beaches and sand dunes and the habitats and species they support. SECPA's concern is that if wind turbines are erected on these sandbanks, it will seriously interfere with natural process and lead to the decimation of beaches and sand dunes. SECPA believe that it is inappropriate for this large-scale industrial development to be developed. • sandbanks are conservation sites and are an important habitat which are listed under Annex I of the EU Habitats Directive; • an industrial complex of this size should not be located so close to the shore; this is environmentally unsafe development and poses a threat to the existence of the sandbank itself; • there is insufficient knowledge of the impact that developments of this nature will have on the sandbank and the proximate shoreline; • this development poses a threat to the natural habitats that exists on the sandbank; • this development is premature as grid connections will not be available; • this important sandbank habitat should be preserved. These sandbanks are natural formations and a recognised marine habitat; two of these	This Foreshore Licence application is for permission to undertake site investigation and ecological monitoring, not for consent to build a wind farm. No significant effects on local hydrography or seabed/coastal morphology will arise as a result of the survey activities which are the subject matter of the Foreshore Licence application. A future application for development consent for the proposed wind farm will be submitted to An Bord Pleanála under the Maritime Area Planning Act, 2021 as amended, and the associated consent framework. The development consent application for the proposed wind farm will be subject to an independent environmental impact assessment by An Bord Pleanála under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process.

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sand banks (Longbank & Blackwater) are designated as a Marine Special Area of Conservation; • sandbanks should be designated as a Marine Protected area and be free from industrial development; • no research has been carried out on the impact that the existing 7 turbines have had on the Arklow sandbank; • The engineering and or other difficulties encountered by the existing 7 turbines on the Arklow Bank which led to the granting by the Environmental Protection Agency of a Dumping at Sea Permit to Arklow Energy Limited on 20 October 2017 for a period up to 31 May 2025 for the purpose of moving up to 99,999 tonnes of sand from the vicinity of those turbines, has not been adequately explained in this application and there has been inadequate assessment of the in-combination effects of the activities permitted under the Dumping at Sea Permit; • Sandbanks are a habitat for Phytoplankton and consequently are a significant carbon store. The vast scale of this development is totally inappropriate to the sensitive near shore site selected. Indeed, based on current permitting practice in EU, a development of this scale in such a sensitive location would be highly unlikely to be even proposed in any other country in Western Europe. The Dublin Array project is too big and too close to shore and located off one of the highest amenity unspoilt coastlines in Ireland. The average distance from shore of offshore wind farms under construction in the EU last year was 59km. We support the need for changing to renewable energy instead of using fossil fuels but are concerned about the environmental impact of this development in its current form.	

Table 1.3: Summary of observations made by Prescribed Bodies and Applicant's Response (18 November – 17 December 2021)

Statutory Body	Applicant's Response
Marine Institute The Marine Institute summarised the site investigation which are the subject of the foreshore licence application. There are no licenced aquaculture sites within the proposed site investigation area on the Foreshore and therefore impacts on aquaculture are not considered likely. There is commercial fishing activity within the proposed site investigation area on the Foreshore and therefore some interaction with fishing activity may occur. Notwithstanding this, it is noted that the applicant has appointed a Fisheries Liaison Officer (since 2019) who will engage with the fishing community in the area during investigations. The NIS submitted identifies a number of risks to conservation features (e.g., marine mammals) likely to result from the proposed activity. As mitigation, a number of actions are suggested that should reduce the risk. Foremost among these is the use of marine mammal observers (MMO) during operations including a 'soft start' protocol. The Marine Institute is satisfied that such measures will mitigate any risk to marine mammals in the immediate area during the site investigations. However, it is advised that DHLGH identify any similar geophysical/geotechnical surveys that might be carried out along the eastern seaboard and ensure that they not coincide with this survey. Furthermore, in light of the intensive nature of the methodologies proposed, it would be important that DHLGH consider the cumulative effects of these activities in light of the location and timing of similar activities along the East Coast and consider the likely longer term effects on marine mammals and biota, if any?	The Applicant noted that: The Marine Institute confirmed that impacts on aquaculture are not considered likely; and There will be interaction with fishing activity during some of the proposed survey activities. The Applicant confirmed that the Fisheries Liaison Officer, who has been in place for the project since May 2019, will continue to be available to the fishing community to ensure effective communications during the planning and execution of the proposed surveys. The Applicant acknowledged the Marine Institute's confirmation that the measures proposed (including those outlined in the column to the left) will mitigate any risk to marine mammals in the immediate area during the site investigations. The Applicant noted the Marine Institute's recommendation that consideration be given to the timing of similar geophysical/geotechnical surveys proposed off the east coast. Information to aid the Minister's assessment of the potential for effects of the proposed works to arise, in-combination with other plans and project is provided in Section 4.3 of the Applicant's NIS, Annex F to the application, which concluded that there are no adverse effects upon the European Sites' integrity as a result of the in-combination proposed works.
Department of Housing, Local Government and Heritage Outlined below are heritage-related observations/recommendations co-ordinated by the Development Applications Unit of the Department under the stated headings. *Nature Conservation*	**Nature Conservation** The Applicant reconfirmed their commitment to implementing the DAHG, 2014 "Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters" in relation to the proposed geophysical acoustic surveys and geotechnical investigations, or updated guidance as agreed with the National Parks and Wildlife

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The proposed site survey to support the development of the Dublin Array Wind Farm was evaluated by a Natura Impact Statement and other documents. The conclusion of the Natura Impact Statement document is that the proposed works are unlikely to pose a significant likely risk to nature conservation interests in the vicinity. Potential interaction with marine mammals can be ameliorated by the application of "Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters" as outlined in Section 4.4 of the NIS supporting this application. National Parks & Wildlife Service requested that utilisation of this guidance should be added as a condition of consent. *Archaeology* Having reviewed the Marine Archaeological Assessment (MAA) report and other documentation associated with the scheme, the Underwater Archaeology Unit had the following comments in relation to the predicted impacts of the proposed scheme on the known and potential archaeological heritage of the development area. *Approach to Documented Losses* It is not clear to that due consideration has been given to the overall archaeological potential of the development area and in particular the high number of historically- documented losses of ships which are recorded as having been wrecked in the development areas but have yet to be located. In this regard, the Wreck Inventory of Ireland Database lists over 3,000 entries for the coastal waters off Dublin, many of which may lie in the proposed Array Area and the proposed Export Cable Corridors. Only a small percentage of these wrecks have been located and many lie scattered and buried beneath the sands off Dublin and its environs. While known and located wrecks are documented in detail in the MAA report, the assessment does not appear to deal with documented losses of vessels which have yet to be located. The Archaeological Impact Assessment should address both known archaeological sites/receptors and also assess the impact that the works may have on potential archaeology such as documented losses. To illustrate this point: there are over 85 wrecks recorded as lost on the Kish Bank but only 21 have been located; over 100 wrecks are recorded as lost on the South	Service (NPWS) if such should be published prior to the commissioning of the works. A**rchaeology** The Applicant noted the following: The term marine archaeology receptors used within the Archaeological Report, Annex D of the application documents, includes:- (a) Known receptors - for example, physical resources such as shipwrecks, aviation remains, archaeological sites, archaeological finds and material including pre-historic deposits and, (b) Unknown receptors - such as documented losses or other archival documents and/or oral accounts of wrecking events recognised as of historical/ archaeological or cultural significance. The Marine Archaeological Report, Annex D of the application documents takes into account all wrecks within the study area recorded in the Wreck Inventory of Ireland Database (WIID). Section 3.5, Wrecks, obstructions and documented losses, of the Marine Archaeological Report describes the high potential to find new wrecks within the Foreshore Licence area. The potential for wreck material from earlier periods, based on current archaeological understanding, is included in Section 3.4 Maritime activity. As agreed during a meeting with the UAU on 13th January 2022, further information is provided in Appendix A to this response to demonstrate how the discussion of archaeological potential presented in Sections 3.4 and 3.5 of Annex D has influenced the archaeological impact statement and mitigation strategy. The Marine Archaeology Report refers to both known and unknown receptors, the latter includes potential archaeology and documented losses not yet located. As noted above, additional information is provided in Appendix A to this response, to demonstrate how the discussion of archaeological potential presented in Sections 3.4 and 3.5 of Annex D has influenced the archaeological impact statement

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Bull and 85 for Dublin Bay, but only a handful of these have thus far have been discovered. There is also the potential for earlier wrecks to have occurred along the cable route or windfarm site, for which no documentation survives, and which await discovery. It noted that known wreck sites will be avoided and exclusion zones will be established around them, which is welcomed. However, as indicated above, any number of wrecks or associated artefacts may lie waiting to be discovered in the Array area or along the proposed export cable routes. Should this development proceed it is possible that intrusive seabed site investigation (SI) works will negatively impact on previously unrecorded/unlocated wrecks. It is recommended that this is addressed and a revised Marine Archaeology Assessment report is updated to deal with the impact of the works on potential archaeological sites in the development area. The mitigation measures should also be updated to reflect the impact of the works in areas of high archaeological potential, including on submerged landscape horizons. A list of all wrecks should be included in an appendix in the Marine Archaeology Assessment and this shall be resubmitted to the National Monuments Service for (NMS) review. In light of the above it is recommended that the Foreshore Unit request submission of an updated Underwater Archaeological Impact Assessment (UAIA) as further information. Once the Underwater Archaeology Unit, National Monuments Service, Department of Housing. Local Government and, Heritage reviews the updated archaeological assessment report, further recommendations will be issued with regard to potential further foreshore licence conditions. In addition to further information (as outlined above) it is recommended that the following is included as conditions on any grant of a foreshore licence: A copy of the Dublin Array Offshore Wind Farm EIAR Protocol for Archaeological Discoveries (PAD) shall be supplied to the NMS for review and agreement prior to the works proceeding. The results of all SI works, including core samples, etc., shall be made available for assessment to the consultant archaeologist for review. Such assessment shall seek to identify any cultural material contained within the samples, evidence for palaeo-environments, etc. A follow up Archaeological Report detailing the results of the SI samples shall be forwarded to the National Monuments Service for	and mitigation strategy. Additional information regarding documented losses is also provided in Appendix A. Clarifying text has been added to the wording of the mitigation measures and these are also presented in Appendix A. RWE stated that it was committed to implementing all the mitigation measures as presented in Appendix A, and outlined in Section 4 of Annex D. The Applicant committed to complying with the proposed conditions outlined in the column to the left.

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review and consideration and to inform any future Foreshore/Planning application for the proposed offshore windfarm It is noted that the geophysical data from the Dublin Array 2021 campaign will be assessed ahead of any seabed impact at geotechnical, ecological sample and buoy deployment locations. The results of this assessment shall be compiled into a report and forwarded to the National Monuments Service for review in advance of the works taking place. Where archaeological assessment of geophysical data is not possible, or data is not available or of sufficient resolution/standard and an impact on the seafloor/inter tidal zone is expected, it is recommended that a dive/ intertidal survey is carried out accompanied by a metal detection survey. Both the dive survey and the metal detection survey should be licenced under the National Monuments acts 1930-2014. The Marine Archaeology Assessment report refers to an archaeological report compiled by Marine Archaeology which assessed the results of previous SI investigations (Maritime Archaeology, 2020a). A copy of this report shall be forwarded to the NMS for review prior to works proceeding. It is noted that archaeological walkover and metal detector surveys were carried out at both of the cable route landfalls (Dive Licence no. 21D0045 & 21D0046 & Detection Device Licence no. 21R0070 & 21R0071). A copy of both assessment reports shall be forwarded to the National Monuments Service for review in advance of the works taking place. It is also noted that archaeological monitoring of a number of benthic grab samples was undertaken in 2021 (Excavation Licence no. 21E0082). A copy of the monitoring report shall be forwarded to the National Monuments Service for review in advance of the works taking place. You are requested to send further communications to this Department's Development Applications Unit (DAU) at fem.dau@housing.gov.ie where used, or to the following address: The Manager	

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Development Applications Unit (DAU) Government Offices Newtown Road Wexford Y35 AP90	
Dublin City Council Dublin City Council had the following comments to make in regard of the foreshore licence application: The applicant is requested to take cognisance of the following policies and objectives from the Dublin City Development Plan 2016-2022. Chapter 3 – Addressing Climate Change It is an Objective of Dublin City Council: CCO3: To support the implementation of the national level 'Strategy for Renewable Energy 2012– 2020' and the related National Renewable Energy Action Plan (NREAP) and National Energy Efficiency Action Plan (NEEAP) CCO4: To support the implementation of the 'Dublin City Sustainable Energy Action Plan 2010–2020' and any replacement plan made during the term of this development plan. CCO9: To encourage the production of energy from renewable sources, such as from bio- energy, solar energy, hydro energy, wave/tidal energy, geothermal, wind energy, combined heat and power (CHP), heat energy distribution such as district heating/ cooling systems, and any other renewable energy sources, subject to normal planning considerations, including in particular, the potential impact on areas of environmental sensitivity including Natura 2000 sites. CCO10: To support renewable energy pilot projects which aim to incorporate renewable energy into schemes where feasible CCO14: To support the government's target of having 40% of electricity consumption generated from renewable energy sources by the year 2020. It is the Policy of Dublin City Council CC2: To mitigate the impacts of climate change through the implementation of policies that reduce energy consumption, reduce energy loss/wastage, and support the supply of energy from renewable sources. CC3: To promote energy efficiency, energy conservation, and the increased use of renewable energy in existing and new developments. The applicant is recommended to also give consideration to Dublin City Council's Draft Dublin City Development Plan 2022-2028, the relevance of which shall be	The Applicant noted and welcomed the policies and objectives of the Dublin City Development Plan 2016-2022 in addressing climate change and the proposed policies and objectives within the draft Dublin City Development Plan 2022-2028 which recognise the potential benefits of the marine sector to the city's economic growth. The Applicant confirmed that a Seascape, Landscape and Visual Impact Assessment will be completed for the proposed wind farm development and included in the Environmental Impact Assessment Report which will be submitted in due course as part of the future Development Consent application in accordance with the Maritime Area Planning Act, 2021 and associated regulations. The Applicant noted the existence of the environmental information as highlighted by Dublin City Council (DCC) and has requested this data from the relevant organisations. It is understood that the data relates to conservation features of the South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC and the Rockabill to Dalkey SAC. The Report to Inform Appropriate Assessment Screening, Annex E of the application documents, recommends that all of these sites should be screened into an Appropriate Assessment and the availability of more recent data would not change that conclusion. The mitigation measures which the Applicant has committed to implementing recognise the dynamic nature of the environment and the potential for changes to have occurred to the baseline environment between assessment and commencement of the works. Ecological walkover surveys of the inter-tidal areas are proposed to confirm the location and extent of sensitive habitats and features, including those that provide foraging or roosting habitat for bird species, so that impact upon these features can be avoided. Marine mammal mitigation includes the use of Marine Mammal Observers who will undertake pre-start monitoring for at least 30 minutes prior to the commencement of sound producing activity, between 1st May and 30th September the

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determined by when the applicant submits their application. The draft Plan, which is currently on public display with the stage two consultation period ending on 14h February 2022, can be accessed via the following link: Development Plan 2022 - 2028 | Dublin City Council. The Council recognises in the Draft Plan that a significant source of potential growth for the city's economy is the marine sector, which amongst other sectors and industries, includes offshore renewable energy installations in the Irish Sea. The following policies in the Draft Plan are particularly relevant: Policy SIO30 'Facilitating Offshore Renewable Energy' in Chapter 9 states that it is an objective of Dublin City Council to support the sustainable development of Ireland's offshore renewable energy resources in accordance with the National Marine Planning Framework (2021) and Offshore Renewable Energy Development Plan (2019) and its successor, including any associated domestic and international grid connection enhancements. Policy CA12 'Offshore Wind-Energy Production' in Chapter 3 states that it is the policy of Dublin City Council to support the implementation of the 2014 'Offshore Renewable Energy Development Plan' (OREDP) and to facilitate infrastructure such as grid facilities on the land side of any renewable energy proposals of the offshore wind resource, where appropriate and having regard to the principles set out in the National Marine Planning Framework. The Draft Plan further outlines that the Council shall actively support the development of coastal enabling infrastructure for offshore renewable energy installations in locations that are appropriate and accord with the National Marine Planning Framework (2021). The Council also supports the implementation of the 'Offshore Renewable Energy Development Plan' (2014). Cognisance should be given to feedback from the Council's Park's Biodiversity and Landscape Services as outlined in Appendix A with consideration to be given also in relation to the need to protect the marine environment and its valuable natural habitats, some of which have international importance for biodiversity and provide crucial ecosystem services.	monitoring period will be extended to a minimum of 45 minutes, thus ensuring that there are no marine mammals within 500m radial distance of the noise source. In relation to the conservation features to which the data relates, the Applicant has committed to the following mitigation measures which are presented in the Applicant's NIS, Annex F of the application documents: The inter-tidal survey at Poolbeg, within the South Dublin Bay and River Tolka Estuary SPA will be carried out outside of the period September to March to avoid disturbance to over-wintering bird species which are qualifying interests of the SPA; An ecologist will be present during the inter-tidal survey at Poolbeg to ensure disturbance to bird species is minimised and site integrity is maintained. If roosting birds are present on the shore during intertidal works, the nearby sample stations will be postponed until the birds have departed; A pre-commencement walk-over survey would be completed to identify sensitive habitats and sampling locations micro-sited to avoid impacts; Drift lines which could contain the highest proportion of potential food source for bird species will be avoided by machinery and personnel; Access to the near-shore and intertidal area will be agreed with the monitoring ecologist to ensure sensitive habitats are avoided by machinery and personnel; Reinstatement of the intertidal habitat will be carried out to pre-survey conditions; DAHG, 2014, Guidance to Manage the Risk to Marine Mammals from Man-made Sound in Irish Waters will be implemented for during geophysical and geotechnical surveys.

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It is recommended that a visual impact assessment be submitted as part of any future planning application in order to assess the level and character of impact of the proposal on the landscape and the built environment for Dublin City and the surrounding area. Appendix A: Feedback from Dublin City Council's Parks, Biodiversity and Landscape Services The proposed works in the Sandymount area, including land and intertidal access, are noted. More localised and recent data is available than the NPWS Site Synopsis referenced, e.g. Birdwatch Ireland's Dublin Bay Birds Project data, NUIG data on Zostera beds in the area, and IWDG data on marine mammals. This data should be consulted before concluding NIR/EIA.	
Inland Fisheries Ireland (IFI) IFI pointed out that the mitigation measures and guidance of NPWS in regard to marine mammals are not transferrable to fish species. The fish remain invisible to any shore- or boat-based observer. Mitigation measures should aim to reduce the sound generated, in intensity and duration. The use of soft-start and ramp-up procedures for any sound-generating surveys undertaken – both on a day-to-day basis and on re-start after any stoppages within any day should be undertaken. This measure should be a condition of the foreshore licence. The comments of IFI in this regard related to fish species of conservation significance and of leisure angling significance all of which constitute part of IFI's brief. The IFI recommended that the Applicant contact the Sea Fisheries Protection Agency (SFPA) to seek advice regarding the timing of survey works to avoid clashing with spawning periods of commercial fish in the area. This will reduce any potential for noise damage to larval and juvenile life stages of fish when they are more susceptible to noise damage than adults. The timings of the work should be cognisant of the migratory window of diadromous species. The application notes that, migratory fish are known to have a temporal or spatial overlap with the proposed Foreshore Licence application area, although no SACs for migratory fish species are present. Various life stages of the migratory fish species (including but not limited to Salmon, European Eel,	The Applicant reaffirmed its commitment to follow DAHG, 2014 Guidance to manage the Risk to Marine Mammals from Man-made Sound in Irish Waters. This commitment was included in the following documents which were submitted as part of the application, Section 7.2 of the Supporting Information Report, Appendix to the EIA Screening and Environmental Report, Annex C and Section 5.4.4 of the Applicant's NIS, Annex F. The mitigation measures which will be adopted include those recommended by IFI, including the use of soft-start and ramp up procedures at the commencement of acoustic geophysical surveys and following breaks in sound output of greater than 10 minutes. Seven species of fish are known to spawn in the vicinity of the proposed Foreshore Licence area. With the exception of plaice, all spawning is recorded as being of low intensity. Spawning grounds for all seven species are widely found within local and regional areas, and as such, there will be no discernible loss of resource for these species in the context of the Irish Sea populations due to the limited spatial extent of disturbance associated with the proposed surveys. Migratory species, including sea lamprey, Atlantic salmon and sea trout are hearing generalists, whereas European eel and shad species have a higher hearing sensitivity as the swim bladder is linked to the

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Sea lamprey, Shad, Sea trout) would be expected to migrate through or forage within the defined licence boundary area. The application outlines the potential cumulative effects from other foreshore licence activities in the area and the report concludes that they will not interfere in any of the Natura 2000 sites. While the works outlined here are of short duration the cumulative effect of multiple works taking place in specific areas is difficult to quantify. The local fish community will be present so the applicants need to be cognisant of overlapping or consecutive works taking place in areas. IFI considered that this potential for cumulative impacts is one that requires consideration by the Foreshore Division. The application notes the widespread use of the investigation area by sea and shore angling and while the IFI acknowledged the appointment of a Fishery Liaison Officer, it believes the local angling clubs should also be informed in advance of the dates for investigation works.	auditory system in both species. Of the geophysical equipment, which is the subject of this licence application, the Sub Bottom Profiling (SBP) systems operate at the lowest frequency, 2 – 200kHz which is outside the hearing range of most of the migratory species listed which are capable of detecting only very low frequency sounds (below 380Hz). Shad species are the exception and detect sounds above 20kHz. Popper et al., 2014 observed that while it is evident that hearing specialists exhibit behavioural reactions to seismic airguns, there is limited evidence of mortality. The SBP surveys which will be used for the survey works are relatively low power in comparison to the seismic airguns reported in Popper et al., 2014 and are expected to illicit a very short-term startle response should fish be in the immediate vicinity of the sound source. Effects upon migration are therefore very unlikely to occur. The Applicant acknowledged that there are a number of Foreshore Licence Applications within the vicinity of the Kish and Bray Banks which have either been determined but not yet implemented, or have been submitted but not yet determined, and recognise the importance of assessing the potential for cumulative effects. The potential behavioural effects on fish arising from the proposed surveys for Dublin Array will occur only in close proximity to the survey activity and will be short term, therefore the EIA Screening and NIS (Annex C and Annex F of the submitted application) do not predict any significant cumulative impacts to fish ecology to arise as a result of the survey operations. To minimise the risk of any cumulative effects on commercial fisheries, the Applicant has committed in the application documentation to maintain the services of a Fisheries Liaison Officer who will consult with relevant fishermen's groups in order to ensure that appropriate actions can be taken to avoid or minimise any interactions with ongoing fishing / angling activities in the area during the course of the surveys. Arrangements will be made by the Applicant for the publication of formal Marine Notices through the Department of Transport. The Marine Notices will provide vessel and contact details together with a general description of operations and approximate dates of marine

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	survey commencement and completion, deployment timing and location of fixed monitoring equipment. The Applicant will also liaise directly with the IFI to identify the relevant angling clubs to inform in advance of the commencement of survey activities.
Department of Transport The Marine Survey Office (MSO) had no observations but expected in due course to receive a request for observations as part of the established foreshore licence application process.	The Applicant notes that the Marine Survey Office has no observations at this time.
Wicklow County Council Wicklow County Council had no objection to the proposal but recommended the inclusion of the following conditions: With respect to notifications / public awareness, Wicklow County Council recommended that the licence includes conditions whereby the applicant / licensee: Notifies Wicklow County Council's Marine Officer at Wicklow Harbour Office prior to the commencement of each stage of the site investigations. Liaises with Wicklow County Council's Marine Officer with regard to the publication of a local marine notice. The local marine notice should give a general description of operations, commencement dates and planned completion dates. With regard to water pollution and protection of the marine environment, Wicklow County Council recommended the inclusions of following requirements: Regular observations for the presence/absence of oil/water pollution in the vicinity of works and the maintenance of a register/log of such observation. The register/log should include incidents reported. A marine pollution response plan with capability for fast mobilisation should also be included.	The Applicant confirmed its acceptance of the recommendations from Wicklow County Council.
Aquaculture and Foreshore Management Division, Department of Agriculture, Food and the Marine (DAFM) DAFM requested that the following conditions be included in any site investigation licence that issues. Marine Engineering Division noted that there are increasing numbers of proposals for the Irish Sea and that as with those applications, appropriate monitoring and	The Applicant committed to following appropriate good practice techniques and guidance in undertaking the works proposed under the Foreshore Licence. In addition to the surveying and investigation methods proposed, the Applicant has also included a range of mitigation measures set out in the Supporting Information Report and relevant Annexes which were submitted as part of the application.

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measures and best practice must be followed during the to ensure that the proposed survey works do not cause any direct or cumulative negative impacts on FHC access and navigation, environmental sites, aquaculture and fishery harbour operations. BIM noted it is likely that these works could impact the activity of vessels in many fisheries from inshore boats such as whelk, lobster, crab, shrimp, razors etc. as well as whitefish trawlers plus some scallop/queen scallop activity. Every effort should be made by the proposers of this project RWE Renewables Ireland to engage/consult with the fishing and aquaculture sector in the area concerned directly through their Fisheries Liaison Officer before and during the survey. These should include, inter alia, the Producer Organisations, SE RIFF, NE RIFF and the two major processors that purchase fisheries products in the area, Sofrimar Ltd. and Errigal Bay with details of the proposed site investigations and not just rely on the publication of a Marine Notice when the site investigations take place. The main concern for the Sea Fisheries Protection Authority (SFPA) is a pollution event. The applicant is in direct communication with the SFPA Howth Office and is also aware that should an event occur then SFPA Howth is to be contacted immediately via sfpahowth@sfpa.ie or by telephone to XXX because of (direct contact and out of hours Covid19).	The Applicant will liaise with the local harbours, including Howth, Dun Laoghaire, Wicklow and Greystones regarding timing of the proposed works and will issue a Marine Notice via the Department of Transport in addition to local marine notices giving a description of operations, commencement dates and planned completion dates. Prior to the survey commencing, discussions will be held with the Harbour Master at Dublin Port to agree the final location of geotechnical and ecological sampling locations and the timing of works in the vicinity of the Traffic Separation Scheme. A communication protocol will also be agreed along with restrictions on the number of survey vessels operating at any one time within the Port's jurisdiction. Information will also be provided to Dublin Port for inclusion in a Notice to Mariners to be issued for works within the Port's jurisdiction. The Applicant has committed to maintaining the services of a Fisheries Liaison Officer who will consult with relevant fishermen's groups and the identified Producer Organisations and named processors in order that appropriate actions can be taken to avoid or minimise any interactions with ongoing fishing / angling activities in the area during the course of the surveys. The Applicant noted that there are no licensed aquaculture sites within the proposed site investigation area. VMS data indicates no otter trawl or beam trawl activity within the proposed geophysical and geotechnical survey area, although trawling is known to occur within the ecological monitoring area. The ecological monitoring activities which are proposed include benthic sampling, potting and fisheries trawl surveys as well as deployment of static acoustic monitoring devices (SAM). The location of ecological monitoring surveys and SAM deployment locations will be defined after consultation with the local fishing industry and the Sea Fisheries Protection Authority (SFPA). Ecological monitoring vessels will comply with the International Regulations for Preventing Collisions at Sea, 1972 (COLREGs), including the requirement to display lights, shapes and

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	signals as appropriate. Appropriate radio / nav-text broadcast warnings to advise of survey activity will also be made. Each SAM location will be marked by means of a buoy with top mark and light as agreed with Irish Lights. The Applicant commits to contact the SFPA Howth Office immediately should a pollution event occur during the course of the proposed works.
Department of the Housing, Local Government and Heritage Part of the proposed works will take place within and adjacent to a number of Natura 2000 sites. A number of the Special Protection Areas (SPA) are nationally and internationally important sites for wintering species and for breeding sea birds. Wetlands and the designated Annex I intertidal habitats are important feeding grounds for such species. This area too has Special Areas of Conservation (SAC) in which the Annex I habitat Reefs [1170] is designated. There are few examples of this habitat along the eastern sea board. **Assessment Process** The Minister for Housing, Local Government and Heritage, is responsible for carrying out environmental screening and any environmental assessments determined as being required following screening, in accordance with the requirements set out in Directive 92/43/EEC (Habitats Directive), Directive 2009/147/EC (Birds Directive) and Directive 2011/92/EU, as amended by Directive 2014/52/EU (EIA Directive), in respect of applications under the Foreshore Act 1933, as amended. Outside of the Directives, the Minister is also required to consider environmental issues in respect of applications under the Foreshore Act 1933, as amended. **Habitats Directive** The Appropriate Assessment process (AA) is an assessment of the potential for adverse or negative effects of a plan or project, in combination with other plans or projects, on the conservation objectives of a European Site (Natura 2000 site). The focus of AA is targeted specifically on Natura 2000 sites and their conservation objectives. Article 6(3) and 6(4) of the Habitats Directive place strict legal obligations on Member States to regulate the conditions under which development that has the	The Applicant noted the next steps regarding the Appropriate Assessment Screening Determination and Environmental Report.

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potential to impact on European Sites can be proceed. It requires that an Appropriate Assessment be carried out of plans or projects, not directly connected with or necessary to the management of a site as a European Site, but which are likely to have a significant effect thereon, either individually or in combination with other plans or projects. An AA Screening assessment is carried out to determine whether a plan or project is likely to have a significant effect on a European Site. Article 6.3 states that: "*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 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 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, the Member State 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.* *Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."* In giving effect to the above as a matter of Irish law, the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011, as amended) (Birds and Natural Habitats Regulations) provide as follows:-	

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Regulation 42(1) of the Birds and Natural Habitats Regulations states that: "*A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site".* Regulation 42(2) provides that: "*A public authority shall carry out screening for Appropriate Assessment under paragraph (1) before consenting for a plan or project is given, or a decision to undertake or adopt a plan or project is taken*". The Birds and Natural Habitats Regulations further provide as follows at Regulation 42 (6) and 42 (7):- *The public authority shall determine that an Appropriate Assessment of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site.* *The public authority shall determine that an Appropriate Assessment of a plan or project is not required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it can be excluded on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site.* Furthermore, under section 42A (13) of S.I. No. 293 of 2021 an Appropriate Assessment, including the specified public consultation, must be carried out before the public authority makes a decision to undertake or adopt the proposed plan or project. **Risk Assessment for Annex IV Species** Outside of designated Natura 2000 sites, the waters around Ireland's coast are a suitable habitat for a number of species listed under Annex IV of the Habitats	

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Directive (92/43/EEC). Article 12 of the Habitats Directive affords strict protection to those species listed in Annex IV of the Directive wherever they occur. Where necessary a Risk Assessment for adverse effects of the proposed works on Annex IV species must be undertaken and a report produced. This assessment is separate to that undertaken under Article 6.3. The purpose of the Risk Assessment is to examine the possibility that the proposed project either individually or in combination with other plans and projects, may result in the deliberate disturbance or destruction of any of the species listed in Annex IV which may be present in the works area. The Risk Assessment should take into account the status (e.g. as indicated in the latest Article 17 reporting for Ireland, NPWS 2019) and sensitivities of relevant Annex IV species to potential impacts associated with the proposed project. The Risk Assessment for Annex IV Species should be precise, with definite findings, mitigation and conclusions removing all reasonable scientific doubt as to the effects of the proposed project on any Annex IV species. **EIA Directive** In Ireland, in accordance with Directive 2011/92/EU, as amended by Directive 2014/52/EU (hereafter, the EIA Directive), projects that are likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location must be subject to an EIA. Article 4 of the EIA Directive requires that projects listed under Annex I must always have an EIA while projects listed under Annex II shall be subject to an EIA if (i) determined on a case-by-case basis or (ii) they exceed certain thresholds set by each Member State. Thresholds have been set for Annex II projects in Irish legislation. Projects which do not meet the threshold may still require an EIA if the project is likely to have significant effects on the environment. Annex I and Annex II projects have been transposed into Section 5 (Parts 1 and 2) of the Planning and Development Regulations 2001, as amended. Section 13A(1)(b)(i) of The Foreshore Act 1933, as amended, requires that an EIA be carried out for all developments of a class specified in Part 1 or Part 2 of Schedule 5 of the Planning and Development Regulations where the	

Statutory Body	Applicant's Response
development exceeds the relevant quantity, area or other limit specified in that Part, or where no quantity, area or other limit is specified. Section 13A(1)(b)(ii) of the Foreshore Act states that an EIA shall be carried out when a development is of a class specified in Part 2 of Schedule 5, but does not exceed the relevant threshold (i.e. sub-threshold) and the Minister determines that the proposed development would be likely to have significant effects on the environment. Therefore, it is necessary to examine such projects on a case-by case basis. In the case of Annex II projects that are determined on a case-by-case basis, or sub-threshold, an EIA screening is required to determine if the project will have significant effects on the environment. Under Article 4(4) the developer (applicant) is required to submit information on the characteristics of the project and its likely significant effects on the environment. The developer may also provide a description of any features of the project and/or measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment. Subsequently, in accordance with Article 4(5), the Minister is required to make a determination, which shall be made public, that: Where it is decided that an EIA is required, states the main reasons for requiring such assessment with reference to the relevant criteria listed in Annex III (Schedule 7 of the Planning & Development Regulations 2001) of the EIA Directive; or Where it is decided that an EIA is not required, states the main reasons for not requiring such assessment with reference to the relevant criteria listed in Annex III of the EIA Directive, and, where proposed by the developer, states any features of the project and/or measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment. **Non-statutory Environmental Report** Where projects do not fall under a class that require an EIA or an EIA Screening, and in- keeping with good governance, a Non-statutory Environmental Report assessing the environmental effects of the proposed works on the receiving environment is required. This report will document the current state of the environment in the vicinity of the proposed activity in order to quantify the effects, if any on the environment, and if applicable to highlight how mitigation will be implemented to minimise impacts on the environment. The EPA Guidelines on the	

Statutory Body	Applicant's Response
Information to Be Contained in Environmental Impact Assessment Reports (2017) indicates the relevant topics to be covered in this report. **Independent Environmental Consultants (IEC)** Owing to the scale and complexity of the environmental assessment required, and taking account of the available resources within the Department, I recommend that Foreshore Section of DHLGH engage a suitable qualified IEC. The IEC must conduct an independent assessment of the information provided by the Applicant, having regard to the Habitats Directive, the Birds Directive, the Birds and Natural Habitats Regulations, the EIA Directive, Non-statutory Environmental Reports and relevant jurisprudence of the EU and Irish courts. The IEC shall ensure that The Minister has all the environmental assessments required to allow them to make decisions on applications under The Foreshore Act 1933, as amended in accordance with the requirements set out in Directive 92/43/EEC (Habitats Directive), Directive 2009/147/EC (Birds Directive) and Directive 2011/92/EU, as amended by Directive 2014/52/EU (EIA Directive). **Conclusion/Recommendation** In principle I have no objections to this application. As outlined above, I recommend that Foreshore Section of DHLGH engage a suitable qualified IEC. On completion of the Public and Prescribed Bodies Consultation and the work of the IEC, I will furnish my Appropriate Assessment Screening Determination and Environmental Report. If the Minister adopts and approves these reports and a determination is made that a Stage 2 Appropriate Assessment is required a public consultation will be held on the Appropriate Assessment. My Final Environmental Report with Determinations which may include any case specific conditions will follow having regard to the information obtained during public participation.	

Table 1.4: Summary of observations made by the Public and Applicant's Response (18 November – 17 December 2021)

Public Submission	Applicant's Response
Submission 1 The observer is concerned that in the drive to cut back on carbon, one cannot forget how important it is to protect the natural environmental. The observer had the following concerns: • This project has the potential to decimate the maritime environment off the coast of Dublin and Wicklow. • A eyesore on the marine landscape, visible for miles. • Interfere with marine mammals including dolphins and seals. • Kill thousands of seabirds, remember the success at Rockabill etc. • Cause foreshore damage. • A menace to shipping. The observer would encourage the Department to do all they can to make sure the application is not successful.	This application is solely for ecological monitoring and site investigation works, the latter required to inform the engineering and design of the offshore wind farm, the cable route(s) to shore and associated infrastructure. The proposed windfarm will be the subject of a development consent process under the Maritime Area Planning Act, 2021 and the associated consent framework which will be subject to assessment under inter alia the Environmental Impact Assessment Directive, the Habitats Directive, the Birds Directive, and the Wildlife Acts, and will be subject to public consultation as part of that process. An Environmental Impact Assessment Report will be submitted with the application which will include an assessment of the potential impact the wind farm may have on a range of receptors including seascape, marine mammals, birds, navigation and the physical environment.
Submission 2 The observer is a commercial fisherman who is very concerned about this application as it will affect their ability to run their business. The observer has a 12m boat that fishes for whelk and crab and lobster in this area.	The Applicant noted the correspondent's concern regarding potential commercial effects of the proposed surveys on their business. The Applicant is committed to continuing engagement with fishers regarding the planning and delivery of the survey works included within the Foreshore Licence application. Where temporary removal of static fishing gear is necessary to allow safe access of survey vessels and operations, agreements will be sought with relevant local fishers to ensure that the necessary actions can be taken to minimise disruption. A Fisheries Liaison Officer has been in place for the project since May 2019 and will continue to be available to the fishing community to ensure effective communications during the planning and execution of the proposed surveys.
Submission 3 **Irish Whale and Dolphin Group** The Irish Whale and Dolphin Group (IWDG) was established in December 1990 and is an All-Ireland group "*dedicated to the conservation and better*	Response to Item 1: The Applicant noted IWDG's comments on the presence of bottlenose dolphins within the area. The sightings rates from the ObSERVE Surveys indicate that the presence of bottlenose dolphins was primarily to the West and South of Ireland, rather than

Public Submission	Applicant's Response
understanding of cetaceans (whales, dolphins and porpoises) in Irish waters through study, education and interpretation". While the IWDG is primarily concerned with cetaceans it has broadened its comments in this case to also include all marine mammals. The IWDG welcomed the opportunity to comment on the foreshore licence. It made the following points regarding the above foreshore application: IWDG agreed that the main marine mammal community has been described and is dominated by harbour porpoise and grey and common seals. However bottlenose dolphins, which are known to be part of the Irish coastal population do regularly pass through the site and given the relatively small and wide-ranging nature of individuals in this population should be given greater consideration in the EIA and AA. The statement "*While sightings rates and resulting density estimates were high in November 2019 and September 2020, overall there wasn't any evidence of a seasonal pattern in the sightings*" could have been addressed using static acoustic monitoring which provides high quality temporal data. In order to ensure site surveys carried out to inform these assessments were appropriate it would have been useful if the applicant had provided the marine mammal survey report as an Appendix. Page 30 Table 2: This table refers to a UHR (Ultra High Resolution) seismic sparker with a peak frequency of 4 kHz. A selection of specific Sub-bottom profiling equipment is listed in Table 1 (appendix i) here below and all boomers, sparkers and pingers have target frequencies that start at 0.5 To 2 kHz. The frequencies described in Table 2 of the document are the highest target frequencies and represent the smallest potential extension of the sound impact zones therefore. Additionally the multi-beam system chosen has a frequency of 190 to 240 kHz. Many multi-beam systems operate below this level and down to 12 kHz. Given the association of a mass stranding with a 12 kHz system multi-beam use in Mozambique in 2008 (Southall et al. 2013) it should be clear that equipment with frequencies lower than that considered in this assessment or with source levels higher than those considered cannot be used in survey work. Additionally equipment not listed, such as chirpers, should not be used.	on the East coast where the proposed site investigations and monitoring surveys which are the subject matter of this foreshore licence application will be carried out. Given that the results of 13 site specific surveys undertaken to inform the environmental assessment and design of the Dublin Array project identified a total of four groups of bottlenose dolphins, the potential risk to the species from the proposed survey activities is considered insignificant, and the screening conclusion presented in the Report to Inform Appropriate Assessment Screening, Annex E of the application documents, is proportional to that risk in relation to the extremely small impact ranges expected from this survey. SACs with bottlenose dolphins listed as qualifying features are located at Cardigan Bay SAC and Lleyn Peninsula and the Sarnau SAC on the Welsh coast, over 100 km from the geophysical survey boundary. Further, separate consideration of bottlenose dolphins and other relevant marine mammals has been given within Annex F, Section 5, Relevant Assessment for Annex IV species. This assessment is conducted in accordance with Article 12 of the Habitats Directive. The Applicant has committed to the implementation of the mitigation measures set out in the 'Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources in Irish Waters' (DAHG, 2014) which is considered sufficient to mitigate any impacts on all marine mammal species which are within the area. The consideration of mitigation measures is not precluded as part of an assessment under Article 12 of the Habitats Directive. The use of Static Acoustic Monitoring (SAM) was considered during the design of site specific surveys to inform understanding of the baseline environment. However, whilst this method can provide continuous fine temporal and spatial scale resolution data, it is most suitable for harbour porpoise and dolphin species, and not suitable for species such as baleen whales or seal species which do not vocalise reliably. In addition, it can be difficult to differentiate between dolphin species with SAM, and since it was known from previous studies that multiple dolphin species are present in Irish waters, it would not be

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Additionally if a USBL and HiPap system are to be used the sound characteristics should be included in the assessment. The DAHG (2014) guidelines on sound source usage requires a report of all sources to be submitted by the operator within 30 days of survey completion, this is not normally checked and required by the regulator and should now be enforced in order that the regulator can ascertain whether source use falls within the licence requirements and has been properly assessed. Table 1: A selection of Sub Bottom Profilers and characteristics of output. Page 44. Table 5. Source levels do not agree with data obtained from CEDA (Central Dredging Association) position paper (https://www.iadc-dredging.com/wp-content/uploads/2017/02/article-ceda-position-paper-underwater-sound-in-relation-to- dredging-125-4.pdf) and recreated below in Table 2 (appendix i) with references. This would seem more conservative in its assessment of noise, with	sufficient to detect "dolphins" without being able to classify to species level, especially considering that the level of protection afforded to different dolphin species differs (e.g. SACs for bottlenose dolphins). The IWDG has conducted several static SAM deployments in the Dublin area (e.g. Berrow et al. 2008, Berrow et al. 2011, Berrow and O'Brien 2013, O'Brien and Berrow 2016, Meade et al. 2017) and has recorded high levels of porpoise detections (detected on almost every day), therefore there is considered to be sufficient SAM data that exists to confirm the presence of porpoise in the area year round. The Applicant is seeking permission under this foreshore licence application to deploy SAM as part of a pre and post wind farm construction monitoring programme. Response to Item 2: The Applicant stated that it is aware of the evidence presented in Southall et al. 2013 of a 12 kHz multibeam system being associated with a mass stranding of melon headed whales. The report concludes that the use of the 12kHz MBES appears to be the most likely initial behavioural trigger of the stranding event, but that a variety of secondary factors contributed to, or ultimately caused, mortalities. The report also notes that the MBES had a relatively low frequency 12kHz, very high power output and complex configuration of many (100+) over lapping beams comprising a wide swathe. The type of MBES which will be used at Dublin Array operate at a higher frequency range (190 -420 kHz). The lower frequency equipment proposed to be used at Dublin Array, i.e. sub bottom profilers, are of a lower frequency 2 -5 kHz which is outside the generalised hearing range of low frequency cetaceans, 7kHz to 35kHz (Southall et all, 2019). Conclusions drawn based on frequencies of 12 kHz are not therefore relevant to the surveys that are the subject of the foreshore licence application. The assessments presented are specific to the types of equipment which may be used as set out in Table 2 of Annex E of the application documents and conclude that there is negligible to no risk of injury to marine mammals from the use of the specified geophysical survey equipment.

Model	Primary Frequency	Parametric Frequency	Source level primary	Source level parametric	
Atlas Parasound (pinger)	18-33 kHz	0.5 to 6 kHz	242/245dB	206/200 dB	Whale warning mode
Kongsberg SBP 120	2.5 to 7 kHz		220 dB		
Innomar SES-2000 Deep Parametric (pinger)	35 kHz	2, 3, 4, 5, 6, 7 kHz	244 dB		
Huntec boomer	0.5 to 8 kHz		205 dB		
Edgetech 512i - chirper	1 to 12 kHz		198 dB		
SIG '2 mille' mini-sparker	1 to 6 kHz		204 dB		
Arena Sub K-Chirp 3310	2 to 8 KHz		204 dB		
Applied Acoustics AA201 and AA301 boomer	1 to 6 kHz		212/215 dB		
Applied Acoustics Squid 500/2000 sparker	1 to 3.5 kHz		216/222 dB		
Applied Acoustics S-Boom (Boomer)	1 to 5 kHz		222dB approx.		

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drilling noise assessed as much lower than assessed for Dublin array but engine noise significantly higher. Indeed the engine noise given in the assessment indicates a slow speed of vessels at all times or electric engine usage. Unless sonic drilling is to be used drilling is not considered of significant impact in itself but would depend on other equipment that may be required for the activity. Page 47 – 6.2.17 does not consider CPT (Cone Penetration Tests) on the drilling activity. Page 48 – 6.2.18. Sub-bottom profilers can include airguns and are often omni-directional at worst and bottom orientated at best. Use of unpublished material should be avoided but Guan (2020) does state "Most, if not all, sparkers and boomers are omnidirectional sources, thus should use 180° as the beamwidth" in the paper quoted. However sound on a rocky substrate will be reflected in all directions. The "wealth of data" referred to should reference properly published material preferably from more than one source. 6.2.19 Parametric refers to separation of signal into different signal frequencies and non- parametric primary frequencies refer to a single frequency output. However such signals are relevant to pingers only and then only some, not all, certainly the observations here are not applicable to all SBPs (Sub-Bottom Profilers). The CSA (2020) assessment quoted is very good but refers to a specific range of equipment and no such specific equipment has been considered here. 6.2.20 refers to the SBPs and sound source being "primarily being at 100 kHz". This is incorrect see Tables 1 and 2 (appendix i) here. The difference between SPL (peak) and SPL rms can be seen described for a variety of equipment Crocker and Frantantonio (2016), and in fact Guan (2020) which is quoted recommends using source levels from this technical report. 6.2.21 There is no indication of type of equipment to be used so discussing source levels, attenuation and frequency should assume the worst case scenario or state for equipment which might be used. Page 49. 6.2.22 This contradicts vessel noise levels in Table 5 of the document.	Marine Mammal Observer Reports including details of the survey equipment used will be submitted to NPWS as required by DAHG 2014. Following a Request for Further Information, details of the USBL system are presented in the table below –

Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band 10 Hz to 10kHZ	Typical length of towed equipment	Indicative Equipment Specification
Side-scan sonar (SSS)	300-500 (low) 500-900 (high)	228 Sound Pressure Level (dB re1µPaPeak)	<300 m from vessel	EdgeTech 4205
Multi-beam Echosounder (MBES)	190 -420	200-235 Sound Pressure Level (dB re1µPaPeak)	Hull- or Pole-mounted	RESON Seabat T50R
Magnetometer (MAG)	Passive[1]	Passive	300 m from vessel	Single G882 marine magnetometer
Sub Bottom Profiler (pinger)	85 - 115	244 Sound Pressure Level (dB re1µPa peak) 220 - 225 Source Level rms (dB re 1 µPa m)*	Hull- or Pole-mounted, or towed 150 m from vessel	Innomar Medium SES-2000
UHR Seismic Sparker	0.4 - 6	200-225 Sound Pressure Level (dB re1µPaPeak)	150 m from vessel	GeoSource stacked dual 400
USBL	21 - 31 kHz	294 Sound Pressure Level (dB re1µPaPeak) 207 Source Level rms (dB re 1 µPa m)*	Vessel mounted transponder – receiver on towed equipment	Kongsberg HiPAP
Refraction	5-150Hz	230 Sound Pressure Level (dB re1µPaPeak)	50 - 100 m from vessel A sensor string of length 100m to 235m will be laid on the seabed to record the response.	Seismic source, such as weight drop or vibrating pot.

* CSA Ocean Sciences Inc. 2020 (CSA, 2020).

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6.2.23 IWDG was not sure exactly which references are referred to but it seems the suggestion is that seals that are hauled out cannot be disturbed in the licence area as there is nowhere to haul out. As the licence area continues to the shoreline this is not strictly true. Though the impact is probably insignificant the applicant should identify any known or potential haul out sites to ensure this is not an issue. 6.2.26 Given the reference CSA (2020) is used which assess a range of equipment that might be used and it identifies limited PTS and slightly larger possible TTS zones, it does not seem exactly correct to conclude "*sound levels are expected to not exceed those which may result in injury to any marine mammal*". Page 50. 6.2.27 While the assumption that baleen whales will not be present this is really dependent on the time of year and without acoustic or boat survey data from the area and surrounding waters it is impossible to determine likelihood of presence and/or disturbance. Some initial survey data has been mentioned with the presence of minke whales in the area acknowledged, but no data is presented that can be found here. So it would appear likely that minkes could be encountered during surveys. Furthermore the statement "*With regard to pinnipeds (all of which are sensitive to low frequency range), although a level of localised disturbance may result this is expected to be minimal, with all disturbance effects from the proposed equipment being within that expected from vessels and consequently highly localized*". This appears to state that seals will only be disturbed by the survey vessel noise and not the survey activity itself. This does not seem credible given the low frequency nature of many sound sources and known source levels above that of vessel noise. 6.2.28 "*However, the proposed activities do not include….. high frequency energy release as part of seismic survey*" but apparently high frequency energy is the main focus of the survey. So this statement is incorrect. Page 51. Table 8. SSS and bathymetric survey activity (presumably Multi-beam systems) are operating outside the frequency range of marine mammals. Many	The type of USBL expected to be used is represented by the Kongsberg HiPAP model which operates at 21 – 31 kHz. This frequency range overlaps with the low-medium end of high frequency marine mammal species auditory bandwidth. USBLs are classed as non-impulsive sound sources which have a reduced risk of potential injury to marine mammals due to the relatively high thresholds required at which injurious effects would occur compared to impulsive noise (see Southall et al., 2019 for the different thresholds between impulsive and non-impulsive noise). Additionally, the utilisation and frequencies of USBLs result in short propagation distances. Modelling of USBL equipment (all models including Kongsberg HiPAP) (CSA 2020) demonstrated that sound levels are predicted to attenuate to 120 SPLrms within 50 metres of the source, which demonstrates the rapid attenuation of this equipment. It can therefore be concluded that any disturbance to marine mammals would be limited to the immediate vicinity of the vessel and any displacement would be contained within the area of disturbance resulting from the vessels presence. This conclusion is consistent with the findings of the Applicant's NIS that there is negligible risk of injury to marine mammals. The Innomar Medium SES-2000 is indicative of the type of SBP, the primary operating frequency of which is 100kHz as stated in paragraph 6.2.19 of the Report to Inform Appropriate Assessment Screening (Annex E of the application documents). Specific examples of the geophysical survey equipment, representative of the types that will be used for the site investigation which is the subject of this Licence application have also been provided in the Table above. These are consistent with the information provided and assessed within the suite of documents provided in the application.

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such systems work within the frequency range of marine mammals (up to 200kHz). This is a general statement without evidence of any investigation. Shallow water systems generally use higher frequencies but have side lobes of energy outside target frequencies and this is well documented. It would be better to include consideration for systems where operating frequencies are audible to marine mammals rather than later finding the system chosen and used was not properly assessed, unless it is sure that no lower frequency systems will be used, but no examples are given, therefore it appears this may be unknown. Given that there have been a total of nine foreshore applications including this one submitted since 2019 that involve work within the Rockabill to Dalkey Island SAC (Site Code 003000) for the protection of harbour porpoise and the only cetacean SAC in the Irish Republic section of the Irish Sea, some consideration should have been given to works which affect the SAC and along with survey works present a danger of cumulative impacts. Indeed the works applied for are part of increased human development, dumping and survey work activity within the SAC. Given the supposed protected nature of the site and the fact that noise is not confined to survey areas the cumulative impact in the next 5 years may be considerable and a greater effort will be required to reduce impacts directly on the SAC. This should result in moving activity outside the SAC where practical as well as temporal mitigation, adoption of more stringent mitigation protocols and strict monitoring. Annex F: Applicant's Natura Impact Statement Page 75. Requires standard NPWS mitigation practice, with additional prewatch period of 45 minutes and delay, required May to September for all marine mammals due to the presence of harbour porpoises calves. Records of equipment use and soft starts applied should be recorded and submitted with the MMO report or as a separate Operators report, as required under the NPWS guidelines. Full reporting as required by the NPWS guidelines must be required by the regulator in order for operations to be compliant and for compliance to be properly assessed. The delay of operations or prewatch of 45 minutes is of little significance in mitigating noise impacts given that where harbour porpoises are found, survey activity needs to simply move farther then 1 km away, start sound sources and precede to operate through areas of harbour porpoise activity. Given that survey activity will operate in and through one of the few SAC's (Special Areas of Conservation) in the	[1] CSA Ocean Sciences Inc. (2020). Application for Incidental Harassment Authorization for the Non-lethal Taking of Marine Mammals: Site Characterization Surveys Lease OCS-A 0486, 0517, 0487, 0500 and Associated Export Cable Routes. [2] Southall, B., Finneran, J., Reichmuth, C., Nachtigall, P., Ketten,D., Bowles, A., Ellison, W., Nowacek, D., and Tyack, P., (2019) Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. Aquatic Mammals, Volume 45, Number 2, 2019. Response to Item 3 and 9: The Applicant acknowledged the inconsistency identified by IWDG for the stated sound pressure levels (SPL) for typical vessel noise between Table 5 and paragraph 6.2.22 of Annex E and confirmed that the assessments have been carried out based on the more conservative value in 6.2.22 (160-175 dB re 1µPaPeak @1m) rather than the values presented in Table 5. (142-145dB re 1µPaPeak @1m). The SPL for both drilling and vessel noise provided in the Central Dredging Association (CEDA) position papers do differ from those presented in Annex E to the application documents, with drilling noise provided by CEDA being lower and vessel noise higher (150dB-180dB 1µPa rms) than those quoted in Annex E of the application documents. However, applying the different source levels at 1m quoted in CEDA would not result in a different outcome for the assessments presented within Annex E. The noise associated with large shipping vessels is widely considered unlikely to cause physical trauma but could make preferred habitats less attractive as a result of disturbance (habitat displacement, area avoidance) (Erbe et al., 2019). A study by Beck et al (2013) notes that marine mammals frequenting the Dublin Port shipping channel will be well accustomed to shipping noise. Ambient underwater noise in Dublin Bay has been estimated at around 113db by Beck et al. (2013) and by McKeown (2014). Given the existing vessel levels within the area, the proposed site investigation will not result in a significant

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country for harbour porpoise a higher level of protection which incorporates the strictest protection for Annex II and IV species in the Habitats Directive and under the Convention of Migratory Species (CMS) should be established under the guidance extracts included in appendix I here. The running of survey activity through areas of recognised harbour porpoise presence with or without an extra 15 minute delay period does nothing to protect these animals from "deliberate disturbance" prohibited under article 12. The assessment at this stage may be unclear as to what exact equipment will be used but reporting should include this, as is required under CMS COP12.14 (CMS, 2017). Areas that need addressing are highlighted in the extract in appendix I. **Appendix I** Table 2: Sounds in the Aquatic Environment	increase in vessel traffic and therefore no significant increase in vessel noise. The vessel noise associated with the proposed site investigation and monitoring activities will be short term, temporary and intermittent and no significant disturbance or displacement effects are expected for any of the marine mammal species identified within the baseline. No amendments are required to the conclusions of this Licence application. Response to Item 4: As stated in paragraph 6.2.5, of Annex E to the application documents, CPTs are considered to be less impacting than drilling (due to the lower sound levels produced), the effects of these are therefore captured within the impacts of the associated drilling and not assessed separately. Response to Item 5: The Applicant noted that while the statement raised by IWDG is valid for high powered, airgun surveys the proposed site investigations will not include the use of air guns. The assessments presented are specific to the types of equipment which are intended to be used during the site investigation, as set out in Table 2 of Annex E. Response to Item 6: The Applicant noted that the equipment assessed for use during the proposed surveys at Dublin Array is of the same type and characteristics as that listed and assessed within the CSA (2020). The latter includes "medium sub bottom profilers", such as sparkers and boomers in addition to parametric pinger systems. The maximum estimated distance of 141m from a geophysical source to the Level B threshold (SPLrms of 160 dB re 1 µPa) in CSA (2020) applies to a sparker system, with the threshold distances for boomer and parametric sources being considerably less. Annex E, The Report to Inform Appropriate Assessment Screening has considered the most precautionary value presented in CSA (2020) for the type of equipment which is proposed to be used at Dublin Array and concludes that marine mammals will be at negligible to no risk of disturbance or injury.

Sound Source	Source level at 1m	Bandwidth	Main Energy	Duration	Directionality
Explosives 1-100 lbs TNT	272dB-287dB re 1µPa zero-to-peak	2Hz-~1kHz>	6Hz-21Hz	~1ms	Omni-directional
Seismic air gun arrays	220dB-262dB re 1µPa peak- to-peak	5Hz-100kHz	10Hz-120Hz	10ms-100ms	Downwards
Pile driving	220dB-257dB re 1µPa peak-to-peak	10Hz >-20kHz	100Hz-200Hz	5ms-100ms	Omni-directional
Multi-beam sonar	200dB-242dB re 1µPa rms	12kHz-455kHz		4-8ms	Downwards (ex. Tilted systems)
Low-frequency military sonar	240dB re 1µPa peak	0.1kHz-0.5kHz	-	6s-100s	Horizontally focussed
Mid-frequency military sonar	223dB-235dB re 1µPa peak	2.8kHz-8.2kHz		0.5s-2s	Horizontally focussed
Sparkers, boomers, chirp sonars	204-230 dB re 1µPa rms	0.5-12kHz	Various	0.2ms	Downwards
Fish Finders and Depth Sounders	230 dB re 1µPa approx	24kHz -200 kHz		1-4ms	Downwards normally but exceptions e.g. Furuno FSV-24 Horizontal
Side Scan Sonar	194 to 249 dB re 1µPa	40kHz - 1250 kHz		4-8ms	Downwards
Acoustic Harassment Devices	194 dB re 1µPa	10 kHz		?	Omni-directional
Shipping (large vessels)	180dB-190dB re 1µPa rms	6Hz >-30kHz	<200Hz	Continuous	Omni-directional
Trailing Suction Hopper Dredges	186dB-188dB re 1µPa rms	30Hz>-20kHz	100Hz-500Hz	Continuous	Omni-directional
Cutter Suction Dredges	172dB-185dB re 1µPa rms	30Hz>-20kHz	100Hz-500Hz	Continuous	Omni-directional
Construction and maintenance ships	150dB-180dB 1µPa rms	20Hz-20kHz	<1kHz	Continuous	Omni-directional
2MW Wind turbines	110 to 140 dB re 1µPa	?		Continuous	Omni-directional
Drilling	115dB-117dB re 1µPa (at 405m and 125m)	10Hz-~1kHz	<30Hz-60Hz	Continuous	Omni-directional

Sound Sources listed approximately in order of source levels . Sources: 1). OSPAR (2009); 2). Thomsen et al. (2 Zimmer (2004); 4). Thomsen et al. (2009); 5). Robinson et al.(2011); 6). Hammerstad (2005); 7) ICES (2005); 8 International (no date a); 9)Hydro International (no date b); 10) McCauley (1998; 11) Hydro International (20 Morton and Symonds (2002); 13) Madsen et al (2006).

Response to Item 7: The Applicant noted that the screening assessment has been undertaken using the most precautionary values presented in CSA (2020) for the type of equipment which is proposed to be used at Dublin Array. The proposed surveys for which consent is sought do not include the use of airguns, which is the only type of SBP equipment for which the source levels presented in Crocker and Frantantonio (2016) exceed the source level used to inform Annex E.

Response to Item 8: The Applicant noted that the assessments presented are specific to the types of equipment which are intended to be used during the site investigation as set out in Table 2 of Annex E.

Response to Item 10: The Applicant noted that a number of seal haul outs are located in the Dublin Bay area, including the sandbanks at North Bull Island, Dalkey Island, Irelands Eye and Lambay Island. Of these sites, the proposed Foreshore Licence area extends around the shoreline of Dalkey Island only and the activities which are proposed in that location are limited to ecological grab sampling only. The draft of the survey vessels is such that they will remain away from land and the haul out site at Dalkey Island. The proposed survey area will not overlap with any sites themselves.

Response to Item 11: CSA (2000) concludes that "Level A exposures are not expected to occur for any of the hearing groups during operation of geophysical impulsive sources", therefore indicating that there will be no significant impact from the works on any of the appropriate hearing groups. Additionally, the sentence in question refers to the "received" sound levels for which the animals will be exposed to following the known avoidance behaviours based on the types of vessels associated with the survey works. Therefore, the conclusion drawn is considered to be valid.

Response to Item 12: Annex E of the application documents concludes that the sound levels from the proposed works may result in some degree of localised disturbance to pinnipeds in water (masking or behavioural impacts, for example). Noise associated with

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Article 12(1) of that directive states: '*Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) in their natural range, prohibiting:* *all forms of deliberate capture or killing of specimens of these species in the wild;* *deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;* *deliberate destruction or taking of eggs from the wild;* *deterioration or destruction of breeding sites or resting places*.' CMS COP12.14 excerpt from VI. EIA Guideline for Seismic Surveys (Air Gun and Alternative Technologies) Description of the survey technology including: name and description of the vessel/s to be used **total duration of the proposed survey, date, timeframe** **proposed timing of operations – season/time of day/during all weather conditions** **sound intensity level (dB peak to peak) in water @ 1 metre and all frequency ranges and discharge rate** Specification of the survey including anticipated nautical miles to be covered, track-lines, speed of vessels, **start-up and shut-down procedures, distance and procedures for vessel turns** **Identification of other activities having an impact in the region during the planned survey, accompanied by the analysis and review of potential cumulative or synergistic impacts scientific modelling of noise propagation** Mitigation and Monitoring Plans Detail of: Scientific monitoring before the survey to assess baselines, species distribution and behaviour to facilitate the incorporation of monitoring results into the impact assessment Scientific monitoring programmes, conducted during and after the survey, to assess impact, including noise monitoring stations placed at specified distances Transparent processes for regular real-time public reporting of survey progress and all impacts encountered Most appropriate methods of species detection (e.g. visual/acoustic) and the range of available methods, and their advantages and limitations, as well their practical application during the activity. Impact mitigation proposals:	the proposed works is not expected to result in injury. Any disturbance would be expected to be small-scale and short-term, with no effects lasting beyond the period of the works. The equipment that results in source levels higher than that from vessel noise are primarily high frequency sound sources from geophysical survey equipment. Sound from the acoustic geophysical equipment which is proposed to be used is highly directional and will therefore have a much more rapid attenuation of noise (e.g. as presented in CSA, 2020) compared to the omnidirectional sound sources such as vessel noise. The statement quoted by IWDG, as reproduced in the comment in the column to the left, is stating that the extent of the area in which disturbance to pinnipeds in water may occur as a result of the survey activities is within the area of disturbance expected from vessels and consequently highly localized. The Applicant has committed to implement the mitigation measures set out in the 'Guidance to Manage the Risk to Marine Mammals from Man-Made Sound Sources in Irish Waters' (DAHG, 2014) which is considered appropriate to mitigate any impacts on all marine mammal species which are within the area. Response to Item 13: The phrase "high frequency energy release" refers to the use of seismic air gun surveys which are not proposed as part of the survey activities which are the subject matter of the application. Response to Item 14: The assessment undertaken has been completed particular to the range of equipment which is proposed to be used and is set out in Table 2 of Annex E of the application documents. Response to Item 15: The in-combination effects screening is presented within section 7.6 of Annex E and the full assessments are presented within the Applicant's NIS (Annex F).

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24-hour visual or other means of detection, especially under conditions of poor visibility (including high winds, night conditions, sea spray or fog) establishing exclusion zones to protect specific species, including scientific and precautionary justification for these zones soft start and shut-down protocols protocols in place for consistent and detailed data recording (observer/PAM sightings and effort logs, survey tracks and operations) detailed, clear, chain of command for implementing shut-down mitigation protocols spatio-temporal restrictions **The observer submitted a reference along with their response.**	Response to Item 16: The purpose of the pre-watch is to monitor for the presence of marine mammals within an area of 1,000m radial distance from the location of the sound source prior to commencement of sound producing activity. DAHG, 2014 requires a pre-watch period of at least 30 minutes. Sound-producing activity will not commence until at least 30 minutes have elapsed with no marine mammals detected within the monitored zone. The extended prewatch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FS007029. If calves have been spotted in the monitored zone the sound-producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the monitored zone by the Marine Mammal Observer. The delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the monitored area of 1,000m. Marine Mammal Observer Reports including details of the monitoring activities will be submitted to NPWS as required by DAHG 2014.
Submission 4 The observer was very concerned about the scale and size of the offshore wind farm planned for Dublin, Bray and Arklow. He/she is in favour of finding new sources of sustainable energy but this must be balanced with caring for the environment, thought about the impact it will have on marine life, the sea bed and proximity to shore. The scale of the wind farm is excessive and that the size of the actual turbines are significant when considering how close to shore they will be. In the observer's opinion, it is not suitable for the area and it needs to be located further out to sea or indeed smaller in size and scale. There are alternatives which are not being considered which are far more ecologically sound and leave less of an impact.	The Applicant notes that this application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route(s) to shore and associated infrastructure. The proposed windfarm will be the subject of further consultation in the future as part of the development consent process under the Maritime Area Planning Act, 2021 and the associated consent framework. An Environmental Impact Assessment Report will be submitted with the application which will include an assessment of the potential impact the wind farm may have on a range of receptors including seascape, marine mammals, birds, navigation and the physical environment. The development consent application documents will also include details of the alternatives considered and the reasons for selection of the site.

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The observer believed this project is wrong and should not proceed in its current form. The observer asked to please revisit the scale and size and type of turbines used for the project and ensure they are located further out to sea. The observer stated that it would be an anomaly within Europe to have this type of wind farm located where they are currently planned.	
Submission 5 The observer would like to stress the importance that there would be transparency in this process. The observer recognised the need for renewable energy sources as quickly as possible. At the same time, he/she is concerned that this would be pushed through without due consideration of a fair deal for the tax payer who will be funding this. Selling off marine "sites" for private developers to develop and paying them for this, involves the danger that other nations would benefit from the energy generated and not Ireland. The observer believed a French company already has access or rights to one such site. The observer asked could alternatives to the giant fixed wind turbines that are proposed be considered? For example floating turbines that do not damage the marine biodiversity?	Under the Maritime Area Planning Act, 2021, the occupation of maritime sites will require a Maritime Area Consent (MAC). This is a type of interest under which developers will be required to pay the Government for permission to occupy the maritime area. MACs will generate income for the Irish economy. In addition to, and separate from the MAC, a development consent will be required for permission for to construct and operate projects in the maritime area. The application for the latter will be accompanied by an Environmental Impact Assessment Report which will include an assessment of alternatives, the potential impact that the proposal may have on a range of receptors including seascape, marine mammals, birds, navigation and the physical environment. The development consent process under the Maritime Area Planning Act, 2021 will also include for public consultation and participation in the decision-making process.
Submission 6 **Augustus Cullen Law** August Cullen Law (ACL) have written the following letter on behalf of local fishermen: Dear Sirs, ACL were instructed to file this objection on behalf of East Coast Fishers including the following: Irish Popcorn & Snackfood Co. Ltd hereinafter "East Coast Fishers"	**Response to Primary Concern** The Applicant is committed to continuing engagement with fishers regarding the planning and delivery of the survey works included in the Foreshore Licence application. In addition to having a Fisheries Liaison Officer available as a direct point of contact for interested fishers, consultation meetings were held in September 2021 in advance of the submission of the Foreshore Licence application with in-person meetings held in both Wicklow and Dún Laoghaire. The Applicant is committed to working with the local fishers to promote co-

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ACL were retained by the fishermen whose names and vessels were set out [Above] fishermen primarily from the East coast Dublin Array, Kish, Wicklow, and Arklow area. ACL's clients are increasingly concerned at the far reaching proposals for wind farms in the Irish Sea. They see major lacunae and neglect in the approach of the sponsoring companies to their opportunity, income and livelihoods in fishing in the Irish Sea. *National policy implications* The nature and extent of this application and related adjacent applications by other Wind Farm Companies are of such a scale that a comprehensive framework is required if these developments are to proceed in a manner consistent with the interests and constitutional rights of traditional fishermen, navigation and the community generally. The development of wind energy is important strategically and economically. It requires an coherent and joined up approach which gives due regard to the interests not just of wind power developers and the exigencies of energy planning, but also to the impacts on the marine environment, on fishing activity and the livelihoods of the fishermen who have traditionally made their livelihood from fishing in the area. The following issues arise: Nature and extent of the applications Stages of Development: surveys, construction, development and operation. Impact on fishers - fisheries impact assessments Impacts on Environment Exploitation of marine resources. **Nature and extent of applications** The applications for foreshore licences cover substantial areas in the immediate vicinity of the East Coast of Ireland and in particular in this application Dublin Array, Bray Banks and Kish. It is also clear that significant areas of the Exclusive economic zone outside the foreshore area may be absorbed or impacted by wind farms. They are included in this geotechnical surveys. If the true impact of these developments is to be assessed, then it should not be done on a piece meal basis, but it should be done in an integrated way. This will involve both the	existence of our two industries throughout the lifetime of the Dublin Array project. **National Policy Implications** Response to Item 1 The extent of the geophysical and geotechnical surveys proposed under this Foreshore Licence application are shown in Drawings 2 and 3 of Annex B to the application documents. These survey locations are in the vicinity of the Kish and Bray Banks. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices are proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects. To accommodate the spatial requirements of ecological monitoring the Foreshore Licence area extends beyond the proposed development area to the north, south and east. The survey area which is the subject matter of the Foreshore Licence application does not extend beyond the 12 nautical mile limit and therefore all proposed activities will be undertaken entirely within the foreshore. Response to Item 2 The Foreshore Licence application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route to shore and associated infrastructure. It should be noted that, in addition to the briefing meetings held with fishers in advance of the submission of the Foreshore Licence application to explain the purpose and content of the application, correspondence was also issued to Augustus Cullen Law including a link to the application documents and a reminder of the deadline for submissions to be made. With respect to the proposed development of the Dublin Array windfarm, which is not the subject of this Foreshore Licence application, the Applicant is committed to providing clear information to interested persons concerning the proposed planning and development timeframe and associated activities, which can be identified on the Dublin Array project website www.dublinarray.com. In

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Foreshore Acts 1933 to 2014 and the Continental Shelf Acts. It appears that some of the proposed development and surveys may extend beyond the Foreshore and into Ireland's exclusive economic zone on the Continental Shelf and require careful statutory processes to avoid an ultra vires situation. It must take into account the MARA Act and National and EU policy documentation and Marine Spatial Plans. **Stages of Development** The proposed developments will have different impacts as they progress. It is necessary to distinguish four stages as follows (a) the surveys stage, (b) the physical planning stage, (c) development stage and construction, and (d) the operating stage. It is suggested that a coherent and consistent approach to the each of these stages should be mapped out, so that all those concerned and affected by these major developments are in a position to take an informed view. In what follows below we concentrate on the fisheries and environmental aspects. **Impacts on fishers** Of critical concern to ACL is that the current daily users of the Irish Sea, the fishermen ACL represents, who use it as a workplace have not been consulted adequately in the process to date. Their concerns relate to the impacts of each of the stages of large-scale development identified in paragraph 2 above. These impacts concern (i) the potential loss of opportunity to fish, (ii) the loss of income and, (iii) ultimately the loss of livelihood. If these developments are to proceed in a manner consistent with established rights of local fishers, it is imperative that the agencies of the state ensure that mechanisms are put in place to vindicate the fisher's rights. ACL believes that inter alia, this requires an independent assessment of the impacts in paragraph 3 on fishers at each of the stages mentioned at paragraph 2. ACL believes that to expedite development the most effective means would be to put in place a mediation process to compensate for those losses at each stage. Ideally a national strategy and framework would be negotiated and agreed. **Impacts on the environment.** A major consideration in assessing these applications must be evaluation of the likely impact of developments of this scale on the spawning beds and fishery grounds in the area being assessed for proposed development. It is suggested	addition, a Fisheries Liaison Officer (FLO) has been in place for the project since May 2019 and will continue to be available to the fishing community to ensure effective communications during the planning and execution of the proposed surveys and throughout future stages of the project lifetime. The Applicant has also advised interested persons to register their interest in receiving project updates via the website (refer footer on the project website) to understand the development stages of the project and the Applicant's understanding of the programme associated with same (recognising that that a number of the stages are still the subject of future policy and legislation which is outside of the Applicant's control). Response to Item 3 The Applicant has been engaged with the fishing industry in relation to the proposed Dublin Array windfarm for the past 3 years. The FLO is in regular discussion with fishers, quayside meetings have been held and the Applicant regularly communicates with the solicitors who are representing some of the fishers. The Applicant notes that continued engagement with the fishing industry is essential and will be of benefit to all parties as the project progresses. The Applicant wishes to work with the fishing industry to develop, implement and maintain a co-existence strategy for the lifetime of Dublin Array. Specifically in the context of the activities to which this Foreshore Licence application relates the Applicant intends to continue working with fishers to ensure that the necessary actions are taken to ensure that these activities are completed in an efficient manner promoting coexistence wherever possible. Response to Item 4 No effect on shellfish ecology, including spawning grounds, are anticipated from the activities which are the subject of this Foreshore Licence application. Unlike finfish, shellfish do not possess gas filled cavities and there is therefore less potential for physiological damage to occur due to noise exposure from either geophysical or geotechnical surveys, as there is no

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that the parameters of the exploratory work should be in partnership with the existing users, and not independently of them and their ongoing activities. ACL's fisher client report to it that their catch since the last RWE survey is down 70%. This devastating damage to whelk and other fish stocks since the last survey needs to be independently investigated. ACL's fisher clients firmly believe this reduction is a consequence of the last RWE survey. ACL's clients are willing to liaise with the evidence of their reduced turnover with an investigation by the Department. **Exploitation of wind resource.** The offshore wind resource is a national marine resource in much the same manner as fish or hydrocarbons. It therefore raises issues regarding exploitation and distribution of benefit. ***Proposal for a way forward*** ACL has identified the following as critical: Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 envisages maritime spatial planning as a cross-cutting policy tool enabling public authorities and stakeholders to apply a coordinated, integrated and trans-boundary approach. At the core should be a national strategy, a National Marine Spatial plan, drawn up in consultation with the competing economic interests, and those effected by the possible or probable Marine development. Members of the public should be afforded the opportunity to input and comment on any draft plan. The adoption of such approach would be a matter for government, as well as EU level, much as the County Development Plans are a matter for local authorities. Such an approach could consider in a holistic way, not just the distribution of economic benefits, but also environmental impacts, the impacts on fishing communities, impacts on Navigation, the impacts of exclusion zones and so forth. Financial and compensatory arrangements in relation to the short, medium and longer term should be independently assessed and developed to address the loss of opportunity to current economic players, and in particular fishermen for their loss of opportunity during exploratory work, and their loss of income during development, and any loss of livelihood consequent on operation of the wind projects.	mechanism for marine invertebrates to detect pressure changes associated with sound waves. However, whelk in common with some other invertebrates may be able to detect particle motion associated with sound waves, that is the motion of molecules in water due to the sound. The particle motion component of underwater noise typically attenuates more rapidly than the sound pressure component in the near field, therefore it is considered likely that particle motion levels which may invoke avoidance responses would only be present in very close proximity to the source. Invertebrates have much lower sensitivity to particle motion than finfish and the areas over which they are likely to be able to detect sound through particle motion are likely to much smaller than those areas identified for fish species (Thompson et al., 2015). Injurious effects resulting from particle motion are yet to be demonstrated for any marine noise source (Popper et al., 2014). A number of robust studies of catch rates and abundance of shellfish species are also reported in scientific literature, which show no significant differences between sites where geophysical activity occurred and those where it did not (Wardle et al., 20012; Parry et al., 20023; Christian et al., 20034; Parry and Gason, 20055; Courtenay et al., 20096). The geophysical surveys to which these studies relate employed seismic air guns, which operate at low frequencies but much higher intensities than those planned for Dublin Array. A number of the intended survey techniques, namely the boreholes, vibrocores, cone penetration tests (CPTs), ecological grab samples and trawls and buoy deployments, are intrusive, in that they remove or disturb a small area of seabed. The footprint of these activities combined results in temporary disturbance of a maximum area of 50.88 m2 across the subtidal extent of the Foreshore Licence area (1,129,86ha). The seabed disturbance will therefore have a negligible effect on shellfish stocks. The feedback received from fishers who regularly fish for whelk, crab and lobster in the vicinity of the site investigations which were conducted by the Applicant in 2021, indicated that fishing was good

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Appropriate environmental studies should be identified in conjunction with fishers and scientists and concluded before embarking of elements of these projects which might have unassessed impacts. ***Conclusion*** It is of concern to ACL's fishing clients that consents are being considered and granted on a piecemeal basis without due consideration for ACL's clients' industry interests as stakeholders in the Irish Sea. The projects now being contemplated involve a major incursion into the Irish Marine area. As such it would be appropriate to agree an overall approach and principles. A collaborative consultative process with the fishers being impacted could be used to guide developments and take proper and timely account of impacts and avoid the dislocation and delays which failure to involve the affected fishermen will trigger. On behalf of ACL's fishers clients, ACL asked to be included in a meaningful process in relation to the impacts on our clients, with a view to a mediated resolution of the income and opportunity issues which these proposed developments raise for our clients. There is a parallel between the manner in which it was necessary to articulate a policy in relation to offshore hydrocarbon exploration. It is pointed out that the environment and economic implications of wind power development could be at least as significant - possibly even more so. This is an opportunity for the relevant Departments to take a leadership role and balance and mediate a pragmatic co-existence relationship and financial framework between the fishermen and the Windfarm developers.	following the surveys, with catches not affected. Some fishers in the wider area did report that catches are down compared to earlier in the year, however the Applicant understands that variability in catch rates across the area is common. A reduction in catch across the fishery due to the surveys which were undertaken is not apparent from the information the Applicant has received and there is no pathway by which the surveys which were undertaken could significantly affect shellfish species. Response to Item 5 Article 10 of Irish Constitution provides that all forms of potential energy within the territory of Ireland are owned by the State, including energy from wind which is a natural resource. The material difference with hydrocarbons and fish, also natural resources owned by the State, is that offshore wind is wholly renewable and infinite in its resource potential. Insofar as there is any benefit to be derived from the harnessing of the renewable energy potential of the State, this benefit is owned by the State on behalf of the people of Ireland, not any specific sector. The State may extract this benefit by either directly developing the necessary infrastructure, or by granting rights to third parties to do so, for a return in the form of a royalty, rent, or fee, such amount to be fixed under current legislative mechanism by the Minister for Public Expenditure and Reform, based on an independent valuation procedure. A Maritime Area Consent ('the State Consent'), provided for by the Maritime Area Planning Act, 2021 is the lease mechanism for which successful applicants intending to develop offshore infrastructure will be required to pay the Government for permission to occupy the maritime area. **Proposal for a Way Forward** Notwithstanding the publication of the National Marine Planning Framework in 2021 following extensive public consultation, the suggestions set out above appear to be addressed to the State rather than the Applicant.

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	Specifically having regard to the request for appropriate environmental studies to be undertaken, the Foreshore Licence application was informed by environmental assessments, environmental impact assessment screening and a Natura Impact Statement. The Applicant understands that the application will be subject to a comprehensive evaluation undertaken on behalf of the Minister and his Department and therefore an independent assessment.
Submission 7 The Adela-Hare Centenary Commemoration Committee Adela-Hare Centenary Commemoration Committee submitted observations and three pieces of supporting documentation. <u>Background/Shipwrecks</u> The Adela- Hare Centenary Commemoration Committee was established in 2017 to commemorate the loss of life associated with the sinking of two Dublin Bay vessels in December of 1917, the S.S Hare (Dublin Bay) and the S.S Adela (Holyhead, Wales). The S.S. Hare is one of the shipwrecks that lies within the foreshore licence application boundary area. On the 14th of December 1917, the S.S Hare was torpedoed with the loss of twelve lives. Just two weeks later the S.S Adela was torpedoed with the loss of twenty-four lives. The Adela- Hare Centenary Commemoration Committee included family members of those lost, the local Dublin Port community and historians. It worked in conjunction with Dublin City Council to mark the centenary, and forged links with local authorities in Wales and the German Embassy. The actual commemorative events in 2017 were attended by the Lord Mayor of Dublin, the Lord Mayor of Holyhead, and a representative of the German Embassy in Ireland. The committee's remembrance service was also expanded to include the S.S William Barkley, the first of the iconic Guinness fleet torpedoed on the 12th of October 1917 with the loss of five lives. It too is another shipwreck that lies within the foreshore licence application boundary area. It is important to note that these vessels still lie on the seabed and in most cases the remains of the crew members lost have never being recovered, and for many families represent the final resting place of their relatives. Attached is a PDF copy of a commemorative publication that the committee published to mark the	**Background/Shipwrecks** The Applicant stated that it acknowledges the presence of a large number of known and unidentified wrecks within the proposed survey area and the potential for additional wreck sites to be present which have not yet been discovered. The Applicant also recognises the important contribution that wreck sites make to our understanding of the past and the sensitivity of sites where there has been associated loss of life. A detailed assessment of the potential impacts of the geophysical and geotechnical investigations, environmental surveys and deployment of monitoring equipment upon the marine archaeology of the area is presented in the Marine Archaeology Assessment, Annex D of the Application Documents. The Annex also includes a number of mitigation measures to which the Applicant is committed to implementing, presented in Table 6. These follow the recommendations within Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021). The primary mitigation measure is avoidance of any impact to marine archaeology through the establishment of Archaeological Exclusion Zones (AEZ). The Maritime Archaeology Assessment concludes with the proposed mitigation in place there will be no significant impact on the marine archaeology in the area. The SS W.M. Barkley lies outside of the Foreshore Licence Area. The SS Hare lies at the eastern edge of the ecological monitoring area and will be subject to an AEZ.

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centenary of the sinking of the S.S Hare and S.S Adela and is entitled 'Within the Seat of War'. This foreshore licence application, if given the go ahead, has the potential to impact on 24 known wrecks and another 125 unknown wrecks and uniquely a submerged forest extending from Bray Harbour northwards to Shanganagh Park near Shankill. While the committee note that RWE Renewables Ireland Limited intends to establish Archaeological Exclusion Zones (AEZs) around known wrecks and 'potential receptors', the committee have grave concerns about the scale of the geotechnical and geophysical site investigations to be undertaken and the impact these investigations will have on marine archaeology. The committee would like to draw the DHLGH's attention to the attached publication entitled 'Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects' dated July 2021 which addresses the issue of offshore windfarms and marine archaeology and is a guidance document from a United Kingdom perspective. Internationally there is a train of thought regarding legacy shipwrecks with an emerging viewpoint that shipwreck sites offer a potential to be used as memorials and to be recognised as maritime war graves. Shipwreck sites in which there may be human remains need to be treated with dignity and respect. For descendants of those who were lost at sea and went down with the ships to be found in the Dublin Array study area, these shipwreck sites are perceived as grave sites with emotional and psychological connections going back generations. For so many families these wreck sites are all that they have in marking the final resting place of a loved one, whether that be a great-grandfather, a grandfather, an uncle, an aunt, etc. The committee would strongly urge that in conducting any works associated with the geotechnical and geophysical site investigations that full respect is shown for not just these vessels/shipwrecks but all vessels/shipwrecks in a comparable situation and that all necessary measures are taken to fully survey known and unknown shipwrecks and to prevent their disturbance. <u>UNESCO Biosphere Status/Tourism</u>	Geophysical surveys: The proposed geophysical surveys will be undertaken in the vicinity of the Kish and Bray Banks and landward along narrow corridors within the area as shown in Figure 2, Annex B of the application documents. The geophysical surveys will not have any impact upon archaeological features as there is no contact with the seabed. The geophysical survey will be completed under a Detection Device Consent issued by the National Monuments Service (NMS). The survey data recorded will be interpreted by a suitably qualified archaeologist and reported to the NMS and is expected to aid in further understanding of the archaeological resource of the area. Geotechnical surveys: The geotechnical survey area is also in the vicinity of the Kish and Bray Banks and landward along narrow corridors within the area as shown in Figure 3, Annex B of the application documents. All available information and data will be studied by an archaeologist ahead of the works and locations will be selected to avoid wrecks or anomalies which may indicate the presence of previously undetected archaeology. AEZs will be established around these locations. Further investigation of sites of potential archaeological interest may be further investigated by archaeological survey under licence from the NMS to ascertain whether the site is of archaeological interest. In the event that such a survey confirms the location is not of archaeological potential the AEZ would be removed in agreement with the NMS. All seabed material recovered will be studied by a qualified archaeologist for evidence of submerged deposits of archaeological and/or palaeoenvironmental interest. Deployment of Static Acoustic Monitoring and wind, wave and current measuring buoys: Indicative locations at which wind wave and current monitoring buoys may be deployed are shown in Figure 7, Annex B of the application documents. These locations are on the Kish and Bray Banks. Static Acoustic Monitoring (SAM) devices may be deployed over a wider area as shown in Figure 6 of the same Annex. All available information and data will be studied by an archaeologist

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In 1981 and again in 2015, Dublin Bay was named a biosphere reserve by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in recognition of Dublin Bay's unique ecological habitat and biological diversity. According to UNESCO, a biosphere reserve is an area of land which protects ecosystems while encouraging local development through nature conservation. At the time of designation, the then Minister for Jobs, Deputy Richard Bruton T.D., said he hoped that Dublin Bay's new status would "act as a magnet" for tourists to visit the heart of the Dublin City and learn about the Dublin Bay's unique wildlife. Ireland being an island nation has a coastline that attracts both home and oversee visitors to beaches, cliffs, and long-distance paths every year. Distant views out to sea are very much a part of this attraction. Ireland's coastline provides an especially important economic asset for coastal communities that often rely upon it for tourism related activities. The government recognises the need to revitalise coastal communities and the importance of encouraging new and sustainable enterprises. The coastline and sea views help to attract tourist visitors which in turn support these coastal communities and their economies. Not everyone enjoys the sight of industrial machinery, especially offshore wind turbines, in the seascape. Many would prefer to see the natural landscape unblemished and unspoilt. RWE Renewables Ireland Limited also recognises the importance of the Dublin Bay Biosphere for '*its significant environmental, economic, cultural and tourism importance*' in its Annex C: Environmental Impact Assessment Screening and Environmental Report. These geotechnical and geophysical site investigations will no doubt in time will assist the follow on offshore wind farm development and thus it is important to question what will be the impact from a tourism, ecological and maritime perspective. <u>Ecological/Biodiversity</u> It is the committee's concern that the proposed geotechnical and geophysical site investigations and follow on offshore wind farm development have the potential to cause permanent damage to the fragile sand banks and the associated ecology/biodiversity to be found in the Irish Sea.	ahead of the works and locations will be selected to avoid wrecks or anomalies which may indicate the presence of previously undetected archaeology. AEZs will be established around these locations. Ecological monitoring: Fish, shellfish and benthic monitoring surveys may take place in discrete locations over the wider survey area. The locations will be chosen to avoid any potential impact upon archaeological features. A Written Scheme of Investigation (WSI) is an over-arching document, which is implemented and maintained throughout the lifetime of a project. It sets out principles and responsibilities to ensure that surveys and site investigations undertaken for the project are, where relevant, designed to provide archaeological information. The WSI also establishes the responsibilities of the developer, the retained archaeologist, site investigation and construction contractors and the State's archaeological curators in respect of monitoring and reporting. The WSI also describes the known and potential archaeological resource of the area and sets out agreed mitigations. A WSI for the project was implemented ahead of the early site investigations that were undertaken in 2021 and will be updated and amended as the project develops. The Applicant noted that the application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route(s) to shore and associated infrastructure. The proposed windfarm will in due course be the subject of further consultation through the development consent process under the Maritime Area Planning Act, 2021 and the associated consent framework. An Environmental Impact Assessment Report will be submitted with the application which will include an assessment of the potential impact the wind farm may have on a range of receptors including tourism and ecology. Across Europe different jurisdictions have adopted different policies regarding the proximity of wind farms to the coast. A number of

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According to RWE Renewables Ireland Limited the eventual 'Dublin Array' offshore wind farm development will be located 10km offshore from the shoreline. This is far closer than the norm across the EU when it comes to similar offshore windfarm development projects. The visual impact of offshore wind turbines within 10km of the shoreline would be a significant issue from both a visual and tourism perspective. This investigative foreshore licence application for geotechnical and geophysical site investigations would impact negatively on the following Natura 2000 conservation sites: • Howth Head Coast SPA [004113] • South Dublin Bay and River Tolka Estuary SPA [004024] • North Bull Island SPA [004006] • Dalkey Islands SPA [004172] • The Murrough SPA [004186] • Howth Head SAC [000202] • South Dublin Bay SAC [000210] • North Dublin Bay SAC [000206] • Rockabill to Dalkey Island SAC [003000] • Bray Head SAC [000714] • The Murrough Wetlands SAC [002249] The proposed geotechnical and geophysical site investigations and follow on offshore wind farm development have the potential to cause permanent damage to the fragile sand banks off the east coast of Ireland thus impacting on the above Natura 2000 conservation sites and their associated ecology/biodiversity status. the coastline would be under serious threat from loss of the protection that the sand banks offer the coastline. According to the investigative foreshore licence application, RWE Renewables Ireland Limited intend to carry out geotechnical survey work involving the following number of boreholes which seem quite a lot and will impact the existing seafloor quite considerably in the proposed survey area.	factors influence these policies including cultural and economic factors, length of coastline and dimensions of areas of territorial seas and available water depth. A number of offshore wind farms have been constructed within 20km of the coast of their respective countries, including projects in the UK, Denmark and Sweden, for example Egmond aan Zee, Netherlands at 13km, Thanet, UK at 11km, Lillgrund, Sweden at 9km. The proposed windfarm will in due course be the subject of further consultation through the development consent process under the Maritime Area Planning Act, 2021 and the associated consent framework. An Environmental Impact Assessment Report will be submitted with the application which will include an assessment of the potential impact the wind farm may have on a range of receptors including tourism and visual/seascape impacts. A Report to Inform Appropriate Assessment Screening was submitted as Annex E of the application documents. All of the Natura 2000 sites listed above were considered within the screening assessment using the source-pathway-receptor approach. In line with recent guidance (OPR, 2021) the screening considered all sites that fell within the defined Zone of Influence (ZoI) of activities (Section 3.3 of the Report to Inform AA Screening). All European sites within the ZoI were screened and the potential for direct and indirect effects were considered. The screening assessment screened out Howth Head Coast SPA and Dalkey Island SPA as no impacts are foreseen on the qualifying interests of these sites due to the limited spatial and temporal extent of the surveys proposed. Howth Head SAC, Bray Head SAC and the Murrough Wetlands SACs were also screened out as the features of conservation interest for those sites are not found within the Foreshore Licence area and no impact pathway exists to these features, e.g. vegetated sea cliffs and European dry heath. The North Dublin Bay SAC is outside the area of any possible direct impact from the geophysical and geotechnical surveys, or areas of wind wave and current and Static Acoustic Monitoring deployment. Ecological

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• Up to 61 geotechnical boreholes to an approximate depth of 80m below seafloor and an outside diameter of up to 254 mm. • Up to 61 Deep push seafloor Cone Penetration Tests (CPT) to an approximate depth of 80m below seafloor with a diameter of approximately 40mm. • Up to 31 Seafloor CPTs with a diameter of approximately 40mm and 48 vibrocores with a diameter of approximately 150 mm diameter. The target depth of each technique will be approximately 6 m below seafloor. Up to five of each type may be located within the intertidal area. • Up to 12 nearshore geotechnical boreholes with wireline logging and Rotary Cored Drilling, approximately 100 mm diameter to target depth of 45 m below seafloor (4 at each landfall option). According to RWE Renewables Ireland Limited the purpose of the geotechnical survey is to provide an understanding of ground conditions to '*refine the foundation design, sizing and installation methodology and to finalise cable route and landfall design and installation methodology'*. The disturbance of placing turbine foundations so close to sensitive protected conservation sites and species along the coast has potential to create difficulties when it comes to the installation of cables necessary to get the power ashore. The sea bottom preparation for wind turbine foundations and cable laying activities during the eventual construction phase will cause destruction and disturbance of the local benthic fauna and flora. Indeed, the committee would like to draw the Department's attention to the attached publication entitled 'Problems and Benefits Associated with the Development of Offshore Wind-Farms' OSPAR Commission 2004 and to pages 15 to 18 in which it summarises possible impacts of offshore wind farms on the different parts of the environment including biodiversity are described in general. The proposed geotechnical and geophysical site investigations and the eventual construction and operation of an offshore wind-farm can potentially have an impact on the hydrography and the geomorphology surrounding the offshore windfarm area. An offshore wind farm may change the water flow and the sediment properties in the area. The resistance from the foundations of wind	sampling is highly localised and no likely significant effects on this feature are anticipated to occur. The remaining sites listed above were screened in for Appropriate Assessment. The Applicant has presented the conclusions of the assessment in Annex F of the applications documents. The assessment has concluded with appropriate mitigation in place, as presented in Annex F, no likely significant effect on the qualifying interests of these SPAs or SACs. The geotechnical and geophysical surveys will not affect the stability of the sand banks or the coastline. This Foreshore Licence application is for permission to undertake site investigation and not for consent to build a wind farm. An application for development consent under the Maritime Area Planning Act, 2021 and its associated consent framework will be submitted in due course. The Environmental Impact Assessment Report which will be submitted with the development consent application will include a full and detailed assessment of potential impacts on marine physical processes including impacts on the sandbanks and the coastline. Disturbance to the physical subtidal and intertidal habitats was assessed from all activities including boreholes within the Report to Inform Appropriate Assessment Section 6.4. The total area of seabed removed or disturbed across the proposed survey area is negligible in the context of the overall spatial extent of the proposed survey area, will be highly localised and any disturbed seabed will backfill naturally. The Foreshore Licence application is for permission to undertake site investigation and not for consent to build a wind farm. Physical disturbance to the habitat from the survey activities subject to this licence were assessed within the Report to Inform Appropriate Assessment Section 6.4, Annex E of the application documents. The total area of seabed removed or disturbed across the proposed survey area will be highly localised and any disturbed seabed will backfill naturally. No significant effects on local hydrography or

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turbines may influence the current and wave conditions in the wind farm area and this may influence the rate of erosion and deposition of sediment in the area which could have a bearing on the surrounding ecosystem and marine archaeology, in particular shipwreck sites. The potential impacts on local hydrography may also affect the coastal morphology in the area, due to changes in current conditions and erosion and deposition of material. Consultation Process The committee do note that prior to submitting the investigative foreshore licence application, RWE Renewables Ireland Limited have not undertaken any consultation process specifically with any consenting authorities such as planning authorities, Commission for Energy Regulation, etc., in relation to the scope of this foreshore licence application. This seems very particular, and one wonders if their current investigative foreshore licence application is somewhat premature in purpose. Conclusion In conclusion, the committee believe this foreshore licence application and as such should be disregarded as RWE Renewables Ireland Limited have not undertaken any consultation process with any consenting authorities such as planning authorities, Commission for Energy Regulation, etc., which is a legal requirement. These geotechnical and geophysical site investigations will impact on very important NATURA 2000 conservation sites and will undermine the importance status of Dublin Bay as a UNESCO Biosphere. The committee believe also that the proposed development of offshore wind farms at this time is premature given the lack of an up-to-date legal and governmental framework for such development and should be put on hold until such a framework is in place. The committee would therefore ask that this foreshore licence application be refused accordingly.	seabed/coastal morphology will arise. The potential impact of the wind farm development itself will be assessed and the results reported in the Environmental Impact Assessment Report which will accompany the development consent application under the Maritime Area Planning Act, 2021 and its associated consent framework in due course. The OSPAR Commission, 2004 report identifies potential impacts which may arise from the development of offshore wind farms. Whether the impacts identified will arise and if so, the extent and severity of the effect, is dependent upon the specific details of the proposed development and the nature of the receiving environment. In the context of the subject matter of this application OSPAR, 2004 places emphasis on the importance of undertaking geological (e.g. sonar, seismic) and geo-technical (e.g. drilling, cone penetration tests) ground investigations to understand baseline conditions such as soil stability and to inform the final design of an offshore wind farm. The report was published in 2004 when offshore wind development globally was in its infancy (the first offshore wind farms of 200MW or more were not commissioned until 2009). Since 2004, monitoring data from operational wind farm sites continues to add to the body of knowledge and understanding of impacts associated with the construction and operation of these facilities. The Environmental Impact Assessment which will be submitted with the development consent application for the proposed wind farm will fully assess the potential impacts associated with the proposed development including but not limited to the relevant impacts identified in the OSPAR, 2004 and subsequent publications by the OSPAR Commission. The Foreshore Regulations, 2011 (S.I. No. 353 of 2011) prescribes the bodies which the Minister for the Environment, Community and Local Government may seek observations in respect of an application for a foreshore lease, licence or permission, the list of prescribed bodies (Regulation 3) includes the Commission for Energy Regulation (CRU) and relevant planning authorities. There is no legal

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	requirement for the Applicant to undertake pre-application consultation on a foreshore licence application for site investigations.
Submission 8 The observer strongly objects to the granting of a Foreshore Licence to undertake geotechnical and geophysical site investigations and ecological, wind, wave and current monitoring to provide further data to refine wind farm design, cable routing, landfall design and associated installation methodologies for the proposed Dublin Array offshore wind farm. The observer made the following observations/submissions: **The cumulative impact of repeated geotechnical and geophysical site investigations** The cumulative impact of repeated geotechnical and geophysical site investigations on our fragile marine environment must be considered. All cause disturbance to marine life and habitats. In the absence of designated marine protected areas we can not permit repeated disturbance. The risk of irreversible damage is too great. The biodiversity crisis is as important as the climate crisis. We must not ignore biodiversity in efforts to address the climate crisis. **Public Consultation** To date no meaningful effort has been made by Government to inform the public in a balanced way of both the pros and cons associated with such large scale near shore marine windfarms. It would appear from what has been happening so far that there is an alliance between the Government and developers and a biased drive to facilitate developers to progress their windfarm businesses. The Government has been promoting offshore windfarm development but has failed to inform the public, based on unbiased scientific evidence, of the environmental impact that may accrue from such large scale near shore investigations and development. Rather than depend on developers to do it, our Government must take responsibility for facilitating public consultation and open meaningful public debate in the exceptional context of a pandemic. No special efforts seem to have been made by Government to engage with citizens by producing user friendly, accessible, unbiased information about proposed projects and the alternatives. As a citizen the observer considers themselves disenfranchised by the lack of unbiased public information and consultation relating to this proposal for such	**Cumulative Impacts** Annex E of the application documents includes Appropriate Assessment Screening for in-combination effects, Section 7.4. Information to aid the Minister's assessment of the potential for effects of the proposed works to arise, in-combination with other plans and projects is provided in Section 4.3 of the Applicant's NIS, Annex F to the application. Given the localised nature of any effects from geotechnical and geophysical site investigations and commitments made to appropriate mitigation measures no adverse effects upon the European Site's integrity as a result of the in-combination proposed works are anticipated. **Public Consultation** This comment is addressed at a perceived failing in public consultation processes. This application has been open to public inspection and submissions to inform the Minister's decision making process on the proposed site investigations Foreshore Licence. The future development consent application for the construction and operation of the wind farm project will be subject to independent assessment (including environmental impact assessment) by An Bord Pleanála in accordance with the consent framework to be implemented under the Maritime Area Planning Act, 2021. This decision-making process will be subject to public consultation and participation as legislated for under the Act. The Applicant is also focussed on engagement with interested parties and further information in this regard is available at the project website www.dublinarray.com. **Consideration of Alternatives** This application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route to shore and associated infrastructure. The

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massive permanent alteration to our precious marine environment and coastal landscape. **Consideration of alternatives** In the rush to meet climate targets it seems that all alternatives regarding site selection and turbine type have not been given due consideration. Although great progress has been made with the development of floating turbines, they seem to have been dismissed as a possibility for the Irish East Coast. It is said repeatedly that the technology is not yet sufficiently advanced and that the Irish Sea is too deep but there is also much information available that suggests they can be used effectively in similarly adverse conditions elsewhere. It is crucial that all alternatives are given full unbiased consideration before we progress any particular projects. **Failure to designate Marine Protected Areas** In the interests of preserving the biodiversity of our fragile marine environment absolutely no disturbance to our coastal waters by developers should be permitted before we designate Marine Protected Areas. It is shameful that as an island nation we have designated a mere 2% of our marine environment for protection. Without the designation of MPAs there can be no safe site selection. **Legacy Projects** It is absolutely unacceptable that projects that submitted applications under outdated legislation, before we had the kind of environmental awareness we have now, are given special status of any kind. All proposed projects should start from scratch under the new legislation and be subject to full scrutiny in accordance with up to date best international standards for windfarm development and site selection. There should be no preferential standing based on an outdated application process. **Site selection** It is absolutely unacceptable that developers have been permitted to select sites without environmental constraints. Based on best independent expertise, sites should be selected by Government and developers should only be offered opportunities to propose projects within suitable designated zones. We rely on our elected representatives to safeguard our long term interests by setting boundaries	proposed windfarm will be the subject of a future development consent application under the Maritime Area Planning Act, 2021 and its associated consent framework. This development consent application will be accompanied by an Environmental Impact Assessment Report which will present information on the alternatives considered and the reasons for selection of the preferred alternative. **Failure to designate Marine Protected Areas** The designation of Marine Protected Areas is an active workstream being progressed by the Department of Housing, Local Government and Heritage currently. This process is outside of the control of the Applicant and not related to the subject matter of the surveys to which this foreshore licence application relates. It is considered that the limited geographical and temporal extent of the proposed site investigations would not interfere with the proposed designation of MPAs or the objectives of any such designations. **Legacy Projects** Section 100 of the Maritime Area Planning Act 2021 defines a 'relevant MAC usage' as including any proposed maritime usage which is for the purposes of producing, from wind, offshore renewable energy where the usage – (a) is the subject of an application for a foreshore authorisation made before 31 December 2019 and which has not been finally determined, or abandoned or withdrawn, before the coming into operation of s.101, (b) is the subject of a foreshore authorisation, or (c) was, on 31 December 2019, the subject of (i) a valid connection agreement from a transmission system operator, or (ii) confirmation by a transmission system operator as being eligible to be processed to receive a valid connection offer. The Dublin Array project therefore is one of a number of projects that is eligible to be invited by the Minister pursuant to section 101 to apply for a MAC, within such period as the Minister's invitation may prescribe. Subject to award of a MAC the proposed Dublin Array wind farm will still be required to apply for development consent to An Bord Pleanála

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and controlling development. Such blatant allegiance to, and preferential positioning for, legacy projects demonstrates clearly that this is not happening. **Monitoring of Compliance** Given the enormity of what is at stake it is crucial that provision is made for completely independent expert monitoring of any disturbance to our marine environment caused by investigations should a licence be granted. **Highest Standards for Environmental Impact Assessments** It is crucial that the Government engages independent expertise of the highest calibre to ensure that Environmental Impact Assessments are broad enough and conducted in accordance with current highest international standards.	similar to other strategic infrastructure projects developed (and under development). This development consent application will be subject to public consultation and independent environmental impact assessment by An Bord Pleanála. **Site Selection** This application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route to shore and associated infrastructure. The information that such surveys provide enable wind farm developers to bring forward the best project, to minimise the environmental effects of their proposals and the cost of energy. The development consent application which will be submitted in due course in accordance with the Maritime Area Planning Act, 2021 (and its associated consent framework) will include an Environmental Impact Assessment Report (EIAR) which will identify the adverse and beneficial impacts of the proposed development and set out the alternatives considered and the reasons for selection of the preferred alternative. **Monitoring of Compliance** If the Foreshore Licence is granted, the Applicant will comply with the conditions of that Licence. **Highest Standards for Environmental Impact Assessments** In the context of the foreshore licence application the assessment (including the assessment of the environmental impacts of the surveys proposed) will be undertaken by the Minister and Department of Housing, Local Government and Heritage with input from various statutory agencies with skills and experience in the marine sector such as the Marine Institute, the National Parks and Wildlife Service and the Sea Fisheries Protection Authority. Where considered appropriate, the Department may also appoint external specialist consultants to assess this application to inform the decision-making process.
Submission 9	The proposed geophysical surveys will be undertaken in the vicinity of the Kish and Bray Banks and landward along narrow corridors within

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The observer objects to the granting of this foreshore licence application to RWE on the following basis: The proposed geophysical and geotechnical exploratory works are extensive (see below*) and involve drilling up to 80 m into the seabed at numerous unspecified sites, the creation of boreholes, use of dredging and otter trawl, use of sonar etc. all of which the observer believes will materially affect the proposed site's structure and habitat, its range of biodiversity, its benthic composition and will compromise its integrity as a potential future Marine Protected Area (MPA). From the observer's calculations in accordance with the developer's own estimate of drilling hours, there will be a cumulative time scale of seabed drilling in and around the bay of one form or another for up to 150 days round the clock or 3600 hours over 'X' years. The proposed investigations in many aspects seem to have more of a pre-construction scope and objective rather than that of obtaining data to ascertain the potential negative impacts on the sandbanks of the Dublin Array turbines. The nature of the proposed exploratory works, in particular the geophysical and geotechnical works and intensive use of sonar, already indicates to me a lack of care for sandbank marine habitats by proposing an excess of intrusive measures (e.g., multiple drilling points of up to 80 m over the sandbank area and surrounds). The Kish and Bray sand banks are of established ecological importance for protected species including migratory birds, benthic and cetacean species. The banks act as natural coastal protection, and they are important fish spawning grounds and feeding and post-fledgling grounds for protected species of birds. Given this, it is incomprehensible as to why the Department and Minister are allowing the lead developer RWE (only recently involved in this project) to persist in exploratory works for a huge ORE project that intends to construct up to 61 240m – 310 m high wind turbines at a distance of 10 km from the shore. The evident visual intrusion, while focussing the immediate public concern, is ironically the lesser of the long-term real impacts that will be brought about by wind farm construction at this nearshore site. While the applicant developers are at pains to emphasise the 'exploratory' nature of this foreshore licence application, this current application is a cohesive, indivisible part of the process to construct turbines of great height with an	the area as shown in Figure 2, Annex B of the application documents. The geophysical surveys will not have any contact with the seabed and will not therefore affect the site's structure or benthic habitats. A number of the intended survey techniques, namely the boreholes, vibrocores, cone penetration tests (CPTs), ecological grab samples and trawls and buoy deployments, are intrusive, in that they remove or disturb a small area of seabed. The footprint of these activities combined results in temporary disturbance of a maximum area of 50.88 m^2 across the subtidal extent of the Foreshore Licence area (1,129,863,400 m^2). Durations for geotechnical operations are provided in section 2.1 of the Supporting Information Report and include time for positioning and set-up etc and do not indicate continuous drilling. Disturbance to the subtidal and intertidal habitats from all activities including boreholes was assessed within the Report to Inform Appropriate Assessment Section 6.4 (Annex E of the application documents), which concludes that physical disturbance to habitats and communities and any indirect localised displacement of prey (benthic and fish) would be short term, temporary and over a negligible footprint, therefore no potential exists for significant effects to habitats or species. A number of offshore surveys have been undertaken in recent years which have collated data relating to the physical and ecological environment in the vicinity of the proposed Dublin Array Offshore Wind Farm. The purpose of the proposed site investigations and monitoring activities which are the subject of this Foreshore Licence application are presented in Section 1.3 of the Supporting Information Report, which was submitted with the Foreshore Licence application. The geophysical survey and geotechnical sampling will provide more detailed information on ground conditions, seabed features and variability to inform the design of the proposed wind farm. The

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extensive and intrusive foundational footprint on a very sensitive site in a high amenity area. The observer believes it is not credible to consider in isolation the concepts of the investigative stage and construction and operation stages - these are all interlinked as part of the pressure to finalise this nearshore windfarm project under its banner of 'relevant status'. Therefore, the many negative impacts of mega-turbines on these sandbanks can likely be seen as a probable consequence of the granting of this current foreshore licence application. Over a space of 20 years the strategy of Dublin Array seems to be to repeatedly survey an unsuitable site from a visual, ecological and even infrastructural[1] point of view, until by dint of insistence, a de facto right will be established to build this largescale windfarm on the wrong site – the Kish and Bray sand banks that stretch in front of the coastline of Bray, Killiney Bay and Dalkey. The nearshore marine environment and coastal habitats should not be irrevocably compromised on a corporate or governmental ipse dixit basis by repeatedly surveying and resubmitting foreshore licence applications over and again for the same sensitive site. Again, Dublin Array represent these survey works to be of a solely exploratory nature but reading into the description of the proposed exploratory investigations it appears to me that the works proposed under this licence application are of such a nature as to be seen in effect as site preparation for the construction of turbine foundations and cable laying. It appears to me that the greatly increased extent (1130km^2) of the area proposed for exploration is also indicative of mission creep as to the scale and impact of the project. Why is Dublin Array's proposed site for exploratory surveys still based on and around the Kish and Bray sand banks and why does it enclose an even greater area of the bay which will impact even further on marine and coastal habitats and established SACs and SPAs? The observer notes that in this foreshore licence application, once again, no alternative site is proposed. The observer believes the lack of proposed alternative sites (which the observer thought was a requirement of the foreshore licence process) leads to a confirmation bias in relation the outcome of exploratory surveys for the same site. What is more, the developer's given justifications for the site selection are based mainly on project cost advantages to the developer and nearness to landfall for cables. If the landfall site is to be Poolbeg the cable will also have to pass through the Rockabill to Dalkey SAC, rendering this project even more ecologically impactful – a problem that	investigations will be focussed on proposed turbine foundation locations, interarray, and export cable routes to the selected landfall location(s). In addition ecological monitoring is proposed to collate data on the pre-construction baseline against which to monitor change in the environment. These surveys can be repeated post construction should Development Consent for the wind farm be granted. A broad suite of activities is included within this Foreshore Licence application and the final scope of ecological monitoring will be agreed in consultation with the appropriate statutory agencies within the parameters of the application made. The proposed surveys which are the subject matter of this application are for site investigation and monitoring activities only. The ecological impacts of these proposed surveys are described in a series of Annexes submitted as part of the application, including Annex C EIA Screening and Environmental Report, Annex E Report to Inform Appropriate Assessment Screening and Annex F Applicant's Natura Impact Statement (NIS). The wind farm will require a development consent application to be submitted in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. The effects of the wind farm proposal upon benthic habitats, fish ecology, marine mammals, marine birds, seascape, landscape and visual receptors will be fully assessed and the results presented within the suite of documents which will be submitted with that application. The Environmental Impact Assessment Directive itself distinguishes between a project for the construction and operation of a wind farm, and site investigations for the purposes of establishing the stability of soils and sediments. The grant of a foreshore licence which gives permission to undertake surveys and site investigations to inform the design of the wind farm or to collect data for monitoring purposes is made on terms which are expressly without prejudice to the subsequent mandatory

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should clearly be addressed at this stage by not granting this foreshore licence application. The observer believes that the information provided on the effect of geophysical and geotechnical exploratory investigations and ecological, wind, wave and current monitoring, in particular the prolonged use of borehole and core penetration drilling and the intensive use of underwater scanning of various types does not provide complete, precise and definitive information capable of removing all reasonable scientific doubt as to the effects of the works with reference to sandbank habitats, marine habitats, pelagic and benthic fauna, cetaceans and migratory birds. The observer believes that the granting of this foreshore licence could play a part in the degeneration of the sandbanks and the coast that they protect as has been outlined in studies on the South Dublin sandbanks: Once formed, the banks' interaction with metocean conditions is sufficient to maintain their spatial and altitudinal configuration within certain limits. unless metocean conditions exceed a certain threshold. If this threshold is crossed then a rapid turnover of the system may ensue until a new littoral equilibrium is reached. Were the banks to be removed, not only would a reconfiguration of the tidal current occur and wave energy become more focused on the present protected coastline, but it is unlikely that the present metocean conditions would facilitate a regeneration of the banks. at present it is not possible to say with certainty the degree of change or the threshold tolerances of these banks. Anthropogenic interference in littoral processes could also affect this.[2] [1] Blueprint for Offshore Wind in Ireland 2020 – 2050 "In addition, the tidal regime and the abundance of sediment south of Dublin Bay has led to the formation of a number of sand and gravel banks with potentially high sediment mobility which can provide design and operational challenges for offshore wind farms." https://www.marei.ie/wp-content/uploads/2020/07/EirWind-Blueprint-July-2020.pdf [2] Wheeler, Andrew & Walshe, Jim & Sutton, Gerry. (2001). Seabed mapping and seafloor processes in the Kish, Burford, Bray and Fraser Banks area, South-Western Irish Sea. Irish Geography. 34. 194-211. 10.1080/00750770109555787	development consent application to be made to An Bord Pleanála under the Maritime Area Planning Act, 2021 and its associated consent framework. The site investigation works carried out at a preliminary stage of a project design are not inextricably linked to the construction and operation of the project itself, as the former can occur without the latter, therefore the development and operation of a wind farm is not a probable or likely consequence of granting a foreshore licence application for site investigations. A number of surveys have been undertaken historically in the vicinity of the Kish and Bray Banks in accordance with foreshore licences granted in 2000 and 2021. Over this extended period of time natural features such as seabed bathymetry can change and it is important from an engineering design and environmental assessment perspective that up to date information is obtained concerning not only the current condition but also the rate and nature of any change The data collected to date is being used to inform preliminary design and environmental assessment. The site investigations (geophysical and geotechnical) which are proposed under the current foreshore licence application will be focussed on proposed foundation locations, inter-array, and export cable routes to the selected landfall location(s) which are being refined in the course of the iterative design and assessment process. The proposed development boundary of the wind farm has not changed. It should be clearly noted that suggestions that proposed site investigations do not amount to "site preparation" works as suggested. That is not an accurate representation of the nature of the survey methods which are the subject matter of the foreshore application. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices, is proposed within the proposed wind farm development boundary but also within the surrounding area, to enable monitoring for potential far field effects. For this reason, only the proposed survey area has been increased when compared with previous survey boundaries.

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	This application is for ecological monitoring and site investigation works required to inform the engineering and design of offshore wind farm, the cable route to shore and associated infrastructure only. There is no legal obligation to propose alternatives for such investigations. The proposed windfarm will be the subject of an application for development consent in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. An assessment of the alternatives and reasons for site selection will be provided as part of the application documentation. The application will also be accompanied by a specialist ecological report (Natura Impact Statement) which will assess the impact of the proposed development on any sensitive sites, such as European sites, including Rockabill Dalkey SAC which have the potential to be affected by the proposed development. The potential environmental effects of the proposed site investigation works are set out in the Annexes submitted as part of the application, including Annex C EIA Screening and Environmental Report, Annex E Report to Inform Appropriate Assessment Screening and Annex F Applicant's Natura Impact Statement (NIS). The approach and methodology to Appropriate Assessment screening and preparation of the NIS are consistent with relevant Irish and EU guidance for compliance with the Habitats and Birds Directives. The method draws upon guidance produced by the Department of the Environment, Heritage and Local Government (2009, updated 2010),the Office of the Planning Regulator (2021) and the EC Methodological Guidance on Article 6(3) and 6(4) of the Habitats Directive (EC, 2021). The geotechnical and geophysical surveys will not affect the stability of the sand banks or the coastline. The information collected during the proposed investigations will add to the body of data from previous surveys regarding the form and nature of the sandbanks to ensure the design of the wind farm is the most appropriate for the site. Subject to obtaining a MAC, the proposed windfarm will be the subject of an application for development consent in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. An

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	assessment of the alternatives and reasons for site selection will be provided as part of that application. The Environmental Impact Assessment Report, which will be submitted with the development consent application, will include a full and detailed assessment of potential impacts on marine physical processes including potential impacts on the sandbanks and the coastline.
Submission 10 The observer objects to the proposal by RWE, the German company to construct a wind farm on the Kish and Bray Banks, and the new application for a Foreshore Licence to carry out additional site investigation. The current application covers a significantly larger area. It extends in a west-east direction from the shore line to what appears to be the 12 nautical mile limit (22.2Km). The Irish government seems determined to ignore the internationally recognised importance of site selection as the key to avoiding negative environmental impacts of offshore wind. Instead, the government appears to be actively supporting international energy companies in their bids to lay claim to vast areas of Ireland's near shore waters, with a view to constructing enormous turbines on sites selected decades ago with no environmental constraints. Surely our coasts warrant environmental protection! While this licence application is not an application to construct, it facilitates site investigation, when it is abundantly clear that near-shore sites on vulnerable habitats are totally unsuitable for such vast industrial developments, when obvious alternatives are available. The observer therefore objects to any licence being granted for any further exploration work to be carried out.	The Applicant noted that the Foreshore Licence Area is located solely within the 12 nautical mile limit. The site investigations (geophysical and geotechnical) which are proposed under the current Foreshore Licence application will be focussed on proposed turbine foundation locations, inter-array, and export cable routes to the selected landfall location(s) which are being refined in the course of the iterative design and assessment process. The locations of these investigations are shown in Drawings 2 and 3 of Annex B to the application documents respectively. The Applicant stated that in accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects. For this reason only the Foreshore Licence area has been increased, The ecological monitoring area is shown in Drawing No. 6 of Annex B. The Applicant noted that the wind farm will require a development consent application to be submitted to An Bord Pleanála in accordance with the consent framework implemented under the Maritime Area Planning Act, 2021. The Environmental Impact Assessment Report which will be submitted with the development consent application will include a full and detailed assessment of potential impacts of the proposal and will include consideration of alternatives and the reasons for site selection.
Submission 11 The observer raised the following issues: **Remaining Risks/Lack of Robust Scientific Data:**	**1. Remaining Risks/Lack of Robust Scientific Data:** The Applicant noted it is of the opinion that all of the relevant data has been provided in the application documents to identify the likely

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Granting of this license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive') by failing to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Fish (particularly non-commercial variety), bird species and cetaceans in and around the site location and impact on the same has not been adequately assessed. This may result in a contravention of the Birds Directive (Directive 2009/147/EC) as well as the habitats directive (92/43/EEC). Annex E, Paragraph 6.2.6 states: "For the equipment used within the proposed works, SSS and MBES surveys, the frequency ranges vary between 190 and 420 kHz (MBES) and 300/900 kHz (SSS). All these systems fall outside the hearing threshold of all species (harbour porpoise has the highest frequency range of 200 Hz to 180 kHz (Southall et al., 2007)). Magnetometer surveys are passive systems and do not emit a signal or generate underwater noise. Therefore, it is considered that there would be no potential for injury or disturbance to any cetacean or fish species from these equipment." However, though the specific SSS and MBES used in this license may not effect marine mammals, Sub Bottom profiler (boomer, SBP) and UHR operate at a frequencies within the range of harbour porpoises, which may be performed over a 24 hour period. Additionally DP Vessels noise range is within the audible range of the Harbour Porpoise and no assessment of the risk, nor any mitigation measures are provided. Therefore there is insufficient evidence that the proposed works, individually, or in combination with other plans or projects, is unlikely to have a significant effect on any European Site/s subject to specific mitigation measures. Paragraph 6.2.15, Annex E presents an unacceptable argument for the use of SPL assessment of noise levels over the use of the current gold standards, SEL. The recent license application on Arklow Bank successfully calculated noise levels using SEL technique and there is no technical reason why this could not also be adopted by this developer. The availability of 'easy calculate figures' in the literature does not represent a reasonable excuse for not developing figures where they are lacking. This does not represent an appropriate assessment. Paragraph 6.2.15 Annex E states that:	significant effects of the proposed activities, removing all reasonable scientific doubt. Annex E of the application documents, Report to inform Appropriate Assessment Screening, Section 3 outlines the approach and methodology used to assess the effects of the proposed site investigation and monitoring activities on all European sites designated under the Habitats and Birds Directives within the zone of influence. The approach taken is consistent with relevant Irish and EU guidance published to ensure compliance and transparency of both the process and findings. The Applicant noted that the conclusions of the screening assessment are presented in Tables 14 and 15 of the Report to inform Appropriate Assessment Screening. The closest SACs for fish species are located at Boyne River SAC (50 km to the north), and Slaney River SAC (95 km to the south), given the distance involved, the potential for effects on fish is limited to the pathways for migratory species from these SACs and potential for effects on prey species. The screening assessment of these effects is presented in paragraphs 6.2.29 to 6.2.35. Disturbance effects on fish species will only occur in close proximity to acoustic surveys and geotechnical works and the effects will be short term. Consequently the works are not predicted to result in any significant effects on the prey species for features of relevant SACs and nor is it expected that any significant effects would result on migratory species on passage. Fish species which are qualifying interests of the Boyne River and Slaney River SAC are therefore screened out of further assessment as are indirect effects on fish as prey species of higher trophic levels. The Applicant noted that the NIS, Annex F, includes an assessment of the likely significant effects on the conservation objectives of the Natura 2000 sites which were screened in. Based on the assessment of the proposed surveys alone and in-combination with other projects and plans, with mitigation measures in place, it can be concluded that no adverse effects on the integrity of the European sites will arise. Annex F also includes an Article 12 Assessment for cetaceans which are Annex IV species, i.e. European Protected Species (EPS) listed

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"*While the sound levels from drilling may result in some degree of localised disturbance to marine mammals any disturbance would be expected to be small-scale and short-term with surveys lasting approximately 2 -3 months, with no effects lasting beyond the period of the works*." Even if not permanently deafening these creatures, the prolonged noise created by the proposed license, over the license period, will inevitably force them to avoid the wider area (250 km considered as a buffer for cetaceans, as stated 3.3.6 Annex E) and reduce their feeding grounds. Given that much of this work is occurring both in and around Rockabill to Dalkey Island SAC, this will have a knock-on effect on their populations and, as a result, the status of their SAC. Combining this with other adjacent projects along the coast, this could have a really large effect on local populations. Paragraph 6.2.16 of Annex E states that: "*Modelling for sound levels from drilling works for offshore wind farms (e.g. East Anglia Two Offshore Wind Farm) identified that the threshold for PTS and TTS onset for all marine mammal hearing groups would be less than 100 m from a drilling vessel*." Yet no reference to the proposed modelling is provided and it appears that much of the assessment is based on this figure, the basis on which it was calculated remains unknown. The recent license application on Arklow Bank (FS007339) indicated a TTS for high frequency cetaceans (incl. *phocoena phocoena* aka Harbour porpoise) of 757m for vessels using DP (as is proposed in this license application) and 607m for vibro-coring. Therefore, given the lack of evidence presented in this application fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works and granting of this license would contravene article 6(3) of Directive 92/43/EEC. **Insufficient Evidence or Mitigation Measures:** There is insufficient evidence that the proposed works, individually, or in combination with other plans or projects, is unlikely to have a significant effect on any European Site/s subject to specific mitigation measures. AA screening information in relation to matters including the bird species studied, the impact of underwater noise on bird species, a lack of clarity in relation to the proximity criteria and zone of influence used in screening sites and a failure to present evidence to support conclusions in relation to in combination effects.	under Annex IV of the Habitats Directive, which are protected wherever they occur and which it is an offence to deliberately capture, kill, injure or disturb. With the proposed mitigations in place, as specified in Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014) the Article 12 Assessment concludes that no marine mammals whose range may overlap the survey area will be impacted by the proposed marine survey. The Applicant noted that Annex E, Paragraph 6.2.7 confirms that SBP and UHRS produce sound at frequencies which may be audible to marine mammals. The effects of noise from these acoustic sources are further discussed in paragraphs 6.2.18 – 6.2.21 which concludes that the sound level associated with the proposed equipment (as presented in Table 2 of Annex E) may result in disturbance effects within a few hundred metres of the vessel. Therefore without mitigation measures in place there is the potential for localised disturbance of marine mammals. The likely effects of vessel noise are presented in paragraphs 6.2.22 – 6.2.25, which conclude that the noise associated with the proposed activities will be short term, temporary and intermittent and will not result in a significant increase in vessel traffic normally active in the area. No significant disturbance or displacement effects are expected for any marine mammal species due to the presence of vessels for site investigation, ecological monitoring or buoy deployment. However adopting the precautionary principle the effects of noise on harbour porpoise as a qualifying interest of the Rockabill to Dalkey SAC and indirect effects of noise on the prey species of harbour porpoise, have been screened in for further consideration, the results of which are presented in Annex F, the Applicant's NIS. The assessment in Annex F concludes that any noise impacts on cetaceans and their prey would be short term, temporary and intermittent. With mitigation measures in relation to geophysical acoustic surveys as specified in the DAHG Guidance (2014) the potential for disturbance to the species will be minimised and no impacts on the Conservation Objectives of the SAC are predicted.

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Likely significant effects in combination with other plans or projects were not assessed, including combined effects of past investigations in the area. The license application indicate that 'The exact locations will be determined prior to undertaking the site investigation works' however, no detailed grounds on which these determinations will be made has been outlined, therefore no appropriate determination can be made on whether this will adversely affect the integrity of local sites Granting of benthnic grabs/trawls, without preceding drop down camera, ROV or SCUBA dives of the site is poor international practice and may result in the damage to sensitive habitats The additional mitigation measures "proposed to allow for the presence of harbour porpoise calves during the months of May to September" of "sound producing activities shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO" is totally inadequate and as such a likely significant risk remains in place and approval of this license would constitute a contravention to the habitats directive. "SAM deployment will take approximately two weeks during mid 2022" (The observer assumes during the geophysical survey), "independent of other surveys, the equipment will remain on site for the duration of the Foreshore Licence to provide a long term data set of pre construction monitoring of marine mammals;" Why not deploy the SAM in advance of the other surveys to ensure that Harbour Porpoise and other marine mammals are not in the Zone of Influence (250 km considered as a buffer for cetaceans, as stated 3.3.6 Annex E) prior to starting the geophysical and geotechnical works. This could not only act as a further mitigation measure but also provide scientific data (which should be published open access) on the effects of acoustic disturbance in and on sensitive SACs whose qualifying interests are Harbour Porpoises. With regard to mitigation measures in place to inhibit PTS in marine mammals, no mention of the use of passive acoustic monitoring (PAM) has been mentioned, which would be required for the 'qualified observer' to ensure that no marine mammals were present within the zone of inhibition prior to initiating noise creating works. An observer, no matter how qualified will likely miss sensitive	That Applicant noted that it is theoretically possible to convert between SPLrms and SELcum, however the conversion is based on a series of assumptions, which results in impact ranges which are so extremely conservative as to not provide anything meaningfully relevant to biological organisms. The primary assumptions are that the animal is stationary and facing towards the source of the noise for the entire duration of the impact (up to 24-hours of constant exposure). These assumptions are not realistic for the real-world application of the assessments, as individuals would not feasibly behave in this way and would in fact move away from the sound source (even if not explicitly showing a fleeing reaction). Additionally, studies (Au, 1993) have demonstrated that animals not directly facing the sound of source can be exposed to significantly quieter received sounds (3 – 10dB lower for an animal moving away compared to moving towards a noise source). Therefore, for the marine mammal assessments being discussed any numbers presented following a conversion between SPLrms and SELcum would be considered to have no real word implications and are not valid for these assessments. Additionally, the Applicant noted that when looking at examples of noise propagation modelling for drilling from other projects (for example East Anglia Two which modelled drilling for monopiles, which is louder and more impactful than that considered within this assessment), the ranges for Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS) were concluded to be <100 m for a fleeing animal. One hundred metres is the lowest resolution possible for the model and it is therefore likely that the realistic impact ranges are smaller than this. This modelling for East Anglia Two was based on a much more intensive noise source, for drilling of large monopile foundations rather than small scale coring, and it can be assumed that the maximum potential impact range for the Dublin Array survey works will be further reduced from this number. Therefore, there is no risk of any auditory injury to marine mammals from the proposed works at Dublin Array.

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marine mammals in the vicinity without the use of this apparatus and as such a likely significant risk remains in place. According to the Natura 2000 statement, "the Conservation Objectives to maintain the favourable conservation condition of Harbour Porpoise (*Phocoena phocoena*) [1351] within the Rockabill to Dalkey Island SAC, are defined by the following list of attributes and targets: Species range within the site should not be restricted by artificial barriers to site use; and Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site." Both as a result of noise disturbance and physical destruction of reefs, there is admittedly by phase 1 assessment in the Natura 2000 Statement presented, a "potential for adverse effects" on the qualifying interests (QIs) of the SAC. As outlined in the Natura 2000 statement presented: "*With regards the harbour porpoise feature and the temporary overlap with the calving period of harbour porpoise (May to August) within Rockabill to Dalkey SAC, the noise associated with the proposed works described in Section 6.2 and 6.3of Annex E: Report to Inform AA Screening have the potential for localised disturbance and have potential to disturb and/or displace fish prey items of all cetacean and pinniped species resulting in localised indirect effects*" Section 4.2.6 (p. 60) of the Natura 2000 statement states that "given that any noise impacts on cetaceans and their prey would be short term, temporary and intermittent…. potential for disturbance to the species will be minimised and no impacts on the Conservation Objectives of the SAC are predicted." I do not accept this statement and would present that the noise disturbance and inhibition of QI species and their food source represents a "restriction by artificial barrier" and is contraindicated by the conservation objectives of the SAC. **Unregulated Development Environment:** Granting of this license would contravene article 6(3) of the Habitats Directive by granting a consent to a project which leaves the developer free to determine subsequently certain parameters without first having made certain that the development consent granted establishes conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site.	The Applicant noted that Annex E (paragraphs 6.2.15 et seq), states there is no risk of hearing damage to marine mammals from the proposed Dublin Array site investigation works and any disturbance will occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few hours as the survey vessel undertakes work in that area, with impacts from the works not occurring within the full licensed area for the full duration of the works, The 250 km buffer represents the area of search for SACs for which cetaceans are qualifying interests and is defined considering the scale of movement of individuals, i.e. an individual of an SAC population within the buffer zone could potentially move to within the area of the survey works. Mitigation measures specified in DAHG, 2014 will be followed at all times, with monitoring by a qualified and experienced Marine Mammal Observer prior to start-up of noise sources, followed by the use of the 'softstart' procedure which will ensure that no marine mammal is in close proximity to the vessel when the noise commences. The Applicant noted that the East Anglia Two modelling which is referenced in Annex E of the application documents can be found here: https://infrastructure.planninginspectorate.gov.uk/wpcontent/ipc/uploads/projects/EN010078/EN010078-001487-6.3.11.4%20EA2%20ES%20Appendix%2011.4%20Underwater%20Noise%20Assessment.pdf) The Applicant noted the above conversion between SPLrms and SELcum results in impact ranges which are so extremely conservative as to not provide anything meaningfully relevant for assessment purposes. The Applicant has therefore, based its assessment on similar project modelling such as East Anglia Two and remains confident in the conclusions drawn and stated within the report, see response to similar point above.

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The development consent, if granted, should establish conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site. This is not evident from this application The number and type of benthic grabs and trawls is unclear, in some instances only grabs are mentioned, in some instances biological trawls are mentioned. In some areas of the application 30 grabs are mentioned, in other areas 90 grab samples are mentioned, yet other areas (Annex E, p.19) states annual sampling for 3 years, including 90 grabs and 90 epibenthic trawls are mentioned yet other areas (license application) 1-2 weeks/year for up to 3 years is mentioned, which if only a single grab per period was carried out would result in 78 grabs. The license in this regard is unclear and as such the department cannot effectively ascertain if there is a likely significant impact on Natura 2000 sites and as such, represents a contravention of the habitats directive. The license application area is large relative to the size of the area wherein specifically described activities and monitoring are to take place, particularly to the south. It is unclear from the application why the proposed area is so large and if unspecified activities such as benthic grabs/trawls are to be carried out in the greater license area. If this is the case then further cumulative impacts should be assessed, as the area has recently undergone multiple benthic grab surveys. As this cannot be ascertained for the enclosed documents the department cannot effectively ascertain if there is a likely significant impact on Natura. The license application states "*The inter-tidal and sub-tidal geotechnical sampling locations will be selected after review of the geophysical and environmental data collected during the 2020 Site Investigation campaign. The data will be reviewed for the presence of potential ecological features such as subtidal geogenic reef. Sampling locations will then be micro-sited where necessary to avoid ecological (as well as archaeological) impacts*." This represents <u>a likely significant risk</u> that is not clearly defined at the licensing stage and it is left to the developer to decide what constitutes an ecological feature, such as subtidal geogenic or subtidal biogenic reef. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works.	That Applicant stated that the Article 12 Assessment presented in Appendix 4 of Arklow Bank's NIS concludes that the risk of injury or disturbance to all marine mammal species would be negligible from the geotechnical survey activities and that, in this respect, mitigation is not considered necessary. Despite this conclusion Arklow Bank, like Dublin Array, have committed to follow DAHG, 2014 to follow adopt best practice. **Insufficient Evidence or Mitigation Measures:** The Applicant stated that it has provided robust information in the application documentation to enable appropriate assessment screening of adverse effects on the integrity of any Natura 2000 sites of the project alone and in combination with other plans and projects to be undertaken. The approach to screening, including defining of the zone of influence for each receptor group, is outlined in Section 3 of the Report to Inform Appropriate Assessment Screening. The approach is consistent with relevant Irish and EU guidance which has been published to ensure compliance with both the Habitats Directive (92/43/EEC) and the Birds Directive (79/409/EEC) and transparency of both the process followed and the findings which are reached. The effects of underwater noise on bird species are assessed within Section 6.2 and Section 6.3 of the Report to Inform Appropriate Assessment Screening. In-combination effects are assessed in Section 7.4 of the same. The Applicant stated that in Section 7.4 of the Report to Inform Appropriate Assessment a search of publicly available information was undertaken to identify other plans and projects which may result in adverse effects on the integrity of any Natura 2000 sites in combination with the site investigation and monitoring activities proposed under this Licence application. Sources included the Department of Housing, Local Government and Heritage Foreshore Licence application database and the Environmental Protection Agency Dumping at Sea Register. The search was undertaken for all

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Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). The license application states "*To prevent damage to saltmarsh and sand dune habitat all access to the Poolbeg intertidal by track machine will be supervised by an ecologist to ensure these sensitive areas are avoided*." This represents a likely significant risk that is not clearly defined at the licensing stage and it is left to the developer (or developer employed ecologist) to decide what constitutes a 'sensitive area'. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). The license application states that in carrying out intertidal works at South Dublin Bay and River Tolka Estuary SPA that "an ecologist will be employed to ensure that disturbance is minimised". Not alone is this an admission of disturbance but it represents a likely significant risk that is not clearly defined at the licensing stage and it is left to the developer (or developer employed ecologist) to decide what constitutes damage to site integrity. The license states that: "*If roosting birds are present on the shore during intertidal works, the nearby sample stations will be postponed until the birds depart, without provocation*." It is not clearly defined, at what stage resumption of work will proceed, e.g. after the roosting birds have departed, after the chicks have departed. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). The license states that: "*If for any reason access by sea to the near-shore or intertidal sample locations is not possible, any temporary access arrangements or structures that are put in place to allow machinery access to the beach area will be prepared in consultation with an ecologist and the site should be fully reinstated post works."* It is not clearly defined. Though this may seem like a minor point, access risks should be examined and outlined in the license application and should be appropriately assessed. No such examination appears to be included in the	projects within a 30 km radius of the proposed survey area. Given the localised and temporary nature of the proposed survey works this was considered precautionary. The projects considered include those applications but not yet determined and existing licences which have been granted but the associated activities not yet completed. A comprehensive analysis of the potential impacts of the survey which could affect the integrity of sites has been undertaken as documented in Section 6 of Annex E, Report to Inform Appropriate Assessment Screening and Section 4 of Annex F, The Applicant's NIS. Whilst the exact sampling locations have not been determined at this time, their final locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling sites will be chosen with reference to geophysical and environmental data. Benthic grab sampling will be preceded by video and camera stills imagery. Sampling locations will then be micro-sited to avoid ecological impacts, specifically with reference to the qualifying interests of designated sites and the associated conservation objectives. The Applicant referred to the Supporting Information document, 2.4.13, that stated the subtidal benthic monitoring will include video and camera stills imagery prior to undertaking grab sampling. In addition to the use of video and camera at each site, the location of sites will be informed by analysis of the geophysical data, in line with guidance and best practice this will provide a robust and informed sampling array which will avoid damage to sensitive habitats. The Applicant noted it has committed to mitigation proposed for marine mammals in accordance with the relevant Irish guidance (DAHG, 2014), as agreed with NPWS. A qualified and experienced Marine Mammal Observer will monitor for the presence of marine mammals before the commencement of sound producing activities (pre-watch), during ramp up procedures and following breaks in sound output, as defined in DAHG, 2014. Sound producing activities will not commence until the monitored zone, as defined has been clear for the period required under the guidelines. The purpose of the pre-watch is

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application. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). The license states that: "*Reinstatement of the intertidal habitat will be carried out to pre- survey conditions. Spoil from boreholes would be contained and removed off site*." It is not clearly defined, exactly how boreholes will be reinstated to their pre-survey condition, while spoils are being removed off site. I assume that material removed from bore holes will be mixed, containing both surface material and deeper sediments. Deeper sediments can contain heavy metals hydrocarbons, nutrients and other potential contaminants. The developer does not appear to have defined how exactly they plan to deal with this issue to avoid contamination of local areas and species. As such the license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive'). Annex E: Report to inform Appropriate Assessment Screening (4.1.3) states that: "*The indicative locations of the survey areas which form the scope of the proposed works are shown in Figure 3 to Figure 7. The final geotechnical and ecological sampling locations and buoy deployment positions will be selected after a review of the most up to date geophysical data available in advance of selection of the sampling stations. The data will be reviewed for the presence of anomalies of potential anthropological origin and potential for ecological features such as subtidal reef. Locations will be micro-sited where necessary to avoid archaeological or ecological impacts. As such, no figure is provided for the benthic sampling locations, but taking a precautionary approach it has been assumed that samples could be taken anywhere across the Foreshore Licence application area*." The license fails to contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Approval of such license would contravene article 6(3) of Directive 92/43/EEC ('the Habitats Directive').	to monitor for the presence of marine mammals within an area of 1,000m radial distance from the location of the sound source prior to commencement of sound producing activity. DAHG, 2014 guidance requires a prewatch period of at least 30 minutes. The extended pre-watch, during the months of May to September inclusive, was requested by NPWS in relation to survey works proposed under Foreshore Licence FS007029. If calves have been spotted in the monitored zone the sound producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the monitored zone by the Marine Mammal Observer. The delay recognises the slower swim speed of mothers with calves compared to adults alone and allows additional monitoring time to ensure they have left the area of possible disturbance. The Applicant noted that the 250 km buffer referred to represents the area of search for SACs for which cetaceans are qualifying interests for the purposes of the Report to Inform Appropriate Assessment Screening. It is not representative of the area in which marine mammal species will experience effects from the proposed works. Without mitigation in place the Report to Inform Appropriate Assessment screening concludes that there is a possibility of marine mammals in close proximity to survey locations experiencing disturbance effects. The Applicant has committed to implementing mitigation as advised in DAHG, 2014. The NIS, Annex F, concludes with mitigation in place that there will be no significant effects on any cetacean species nor adverse effects on the integrity of any European site. The Applicant concluded no further mitigation or monitoring is therefore required. The Applicant stated it has committed to mitigation proposed for marine mammals in accordance with the appropriate Irish guidance (DAHG, 2014). DAHG, 2014 states that while the use of PAM in Ireland is encouraged as a helpful and beneficial tool for detecting and monitoring certain cetacean species, the Department does not believe it is sufficiently developed to be regarded as the primary or sole monitoring approach for risk management purposes. Therefore, whilst

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Choice of benthic grab methods is not clear and is of utmost importance in attaining correct data for the next stage of the appropriate assessment of the proposed wind park. Biological trawls are considerably more beneficial in some instances and a clear indication of what will and will not be discovered by these methods should be outlined. **Cumulative Impact:** The current license application appropriate assessment fails to take into account properly or at all the cumulation of the impact of the project with the impact of other existing and/or approved projects contrary to article 4(3) and Annex III. Granting of this license would be a breach of article 4(4) by failing to ensure that the project was properly described in terms of cumulation of impacts. The cumulative impact of the granting of multiple licenses in the area for surveys such as these will have a cumulative impact which has not been appropriately assessed. As such, granting of this license would constitute a breach of the habitats directive. No cumulative assessment has been made of the very real possibility that two developers could be conducting similar site survey work including boreholes and cone penetration tests in the same area at the same time. In combination effects the applicant only considers synchronous events and synchronous licenses/leases and do not give any consideration to prolonged repetitive surveying, dredging and noise in the area, impacted by past licenses/surveys, such as their own previous surveys as recently as 2019. In fact, it is not made clear in the application why repeated benthic grabs/trawls is required and may cause significant impact to benthic communities."	PAM is likely to be used by the survey company appointed to undertake the works in addition to marine mammal observers - conservatively the assessments as documented in the NIS submitted with the application have not relied on the use of PAM as mitigation. The Applicant noted that in accordance with established best practice and case law Appropriate Assessment Screening is undertaken without the inclusion of mitigation measures. An Appropriate Assessment is required where the Appropriate Assessment screening stage determines that the proposed works are likely to have a significant effect on a Natura 2000 site with respect to its Conservation Objectives. The Appropriate Assessment considers whether the proposed works (either alone or in-combination with other projects or plans), will result in an adverse effect on the integrity of a European site. Where adverse effects on the integrity of a site are identified or where an adverse effect is uncertain, mitigation will be required so as to avoid such adverse effect or eliminate such uncertainty. The statement from the NIS included in the application documentation reproduced in the correspondent's observations are from Section 4.2 of that document where the potential for adverse effects on the integrity of the Rockabill to Dalkey Island SAC without mitigation are set out. Section 4.4 of the same document describes the mitigation measures which are proposed and the conclusions of the assessment with mitigation in place. The Applicant noted that in the supporting marine information for the Rockabill to Dalkey Island SAC[1] artificial barriers refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range". As noted in Annex E (paragraphs 6.2.15 et seq), any

[1] https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabill%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

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	disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be impacted by the surveys. **Unregulated Development Environment:** The Applicant noted the application is for a Foreshore Licence for site investigations. The Licence would not leave the Applicant free to determine the parameters of the investigations. Firstly, the Report to Inform Appropriate Assessment Screening and the NIS submitted with the application describe all of the aspects of the proposed site investigations likely to have a significant effect on a European site and subject those aspects to screening and, where necessary, assessment. Secondly, any Foreshore Licence will be granted subject to "Specific Conditions" which will be assessed by or on behalf of the Minister prior to the determination to grant the Licence. Those Specific Conditions will not leave RWE free to determine the parameters of the investigations beyond the parameters already assessed. The application describes with a high degree of specificity the range of samples (minimum/maximum) and activities to be undertaken. The sampling locations will be within the areas assessed and the effects arising will be no greater than those assessed. Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling sites will be chosen with reference to geophysical and environmental data. The Applicant noted it has included method statements within Section 2 of the Supporting Information Report and Section 4.2 of the Report to Inform Appropriate Assessment Screening, Annex E which provide a description of the proposed survey works. In all cases the maximum

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	number of samples required have been stated to ensure a robust assessment is undertaken; subtidal benthic monitoring will involve video and camera stills imagery and grab sampling using a Van Veen or Day grab at 90 locations, together with up to 90 epibenthic trawls. Monitoring is proposed to be undertaken annually for two to three years prior to commencement of the construction of the wind farm and would comprise up to 90 grab samples and 90 epibenthic trawls in each annual campaign. The reference to grab sampling at 30 locations within the Supporting Information Section 1.5 relates to the previous Foreshore Licence Application (FS007029) and is included for information only. The requirements for site investigation and ecological monitoring are outlined in Section 1.3 of the Supporting Information Report and the areas in which each activity is proposed to take place is illustrated in the suite of drawings, submitted as Annex B of the application documents. The geotechnical and geophysical surveys are required to provide further information on ground conditions and seabed features across the site to inform detailed foundation and cable burial design and installation methodologies. As such these surveys are focussed on the array area and along the proposed cables routes and landfall locations. The ecological monitoring is proposed to collate further data on the pre-construction baseline against which to monitor change in the environment. This activity is being proposed in accordance with Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects (DCCAE, 2018) and best practice. Sampling will be located within the proposed array area, along the export cable route/s and across the extent of one tidal excursion to provide data to monitor potential of far-field effects. The in-combination screening and assessment considered all projects undertaking similar activities across the full extent of the Foreshore Licence area, together with a 30km buffer. The extent of this buffer is considered precautionary given the spatial extent of any potential impacts which could arise from the proposed activities.

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	The approach to selection of sampling locations using best available information provides a robust and informed sampling strategy in line with relevant guidance and best practice for surveys where features sensitive to the activity may be present. The sampling locations will be within the areas assessed and the effects arising will be no greater than those assessed. Sampling locations will be selected to avoid any contact with seabed features which are sensitive to seabed disturbance or to direct contact from equipment. Sampling sites will be chosen with reference to geophysical and environmental data. The Applicant noted that in accordance with the application as submitted, a grant of Licence will commit the Applicant to appointing an ecologist to supervise the works within the intertidal areas. The ecologist will undertake a pre-commencement walk-over survey to identify sensitive habitats. Access points and sampling locations will be micro-sited to avoid impacts on sensitive habitats. Reinstatement of the intertidal habitat will be carried out to pre-survey condition using standard practice. Pre application consultation with NPWS confirmed the appropriateness of mitigation measures proposed. The Applicant stated there is a potential for localised disturbance of roosting birds within the intertidal areas should the works overlap temporally with their presence. Whilst the level of disturbance is not likely to lead to a significant effect on the conservation objectives of the South Dublin Bay and River Tolka SPA, such disturbance is to be avoided under the Birds Directive and the Wildlife Act 1976, as amended. Accordingly, and in accordance with the application as submitted, a Licence will be granted subject to conditions requiring the following avoidance measures: The site investigation at Poolbeg will take place outside the period 1st Sept – 31st Mar) to avoid disturbance to over-wintering bird Qualifying Interests of SPA; Activities will not be undertaken in close proximity to drift lines which represent an important food source for bird species;

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	An ecologist will be employed to identify whether roosting birds are present on the shore, and if roosting birds are present during intertidal works, the nearby sample stations shall be postponed until all the birds have departed, without provocation; The ecologist will undertake a pre-commencement walk-over survey to identify any sensitive habitats, such as Zostera noltii, marram grass and annual vegetation drift lines, and to advise RWE on any potential access points to the intertidal area for plant and machinery which would avoid any such sensitive habitats; If no such access route can be identified alternative options include lowering of equipment by crane from the Shelly Banks Road, construction of temporary bridges which span the sensitive habitat without making contact with it or the use of a barge to bring the equipment to the location by sea. Pre application consultation with NPWS confirmed the appropriateness of these avoidance measures in achieving the necessary scientific certainty as to the absence of significant effects on the European site, and in excluding significant disturbance of any of the bird species concerned. The Applicant committed to appointing an ecologist to supervise the works, including access arrangements to the intertidal area at Poolbeg. The ecologist will undertake a precommencement walk-over survey to identify sensitive habitats and access points will be selected to avoid impacts on sensitive habitats. If no access route can be identified which avoids these areas, alternative arrangements include lowering equipment by crane from the Shelly Banks Road, construction of temporary bridges which span the sensitive habitat without making contact with it or the use of a barge to bring the equipment to the location by sea.

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	The Applicant noted that a borehole is a method of drilling into the ground or seabed to recover samples and enable downhole geotechnical testing to be complete. The intertidal boreholes will have a maximum diameter of 10 cms and will be drilled to depth not exceeding 45m. Samples will be removed from within the drill string for detailed offsite analysis. Once the samples have been removed the nearshore boreholes would either grouted to within 2m of surface of the base of mobile sediment (typically using a 2:1 bentonite cement mix) and/or be backfilled with the naturally occurring surrounding sediment. Bentonite is a non-toxic, inert, natural clay mineral (<63 µm particle diameter) that can be diluted with water and is used extensively in the marine environment. A small amount of spoil may be generated from the process and if so this will be recovered and removed from site for disposal. The Applicant noted that the approach to selection of sampling locations using best available information at the time of survey provides a robust and informed sampling strategy in line with relevant guidance and best practice for surveys intended to avoid targeting habitats or features which would be sensitive to the effects of the survey. The Applicant noted it undertook benthic ecology surveys of the site in 2021 to provide further information to inform the assessments which will be submitted as part of the Development Consent application for the wind farm. The ecological monitoring surveys which are proposed under this Foreshore Licence application are for the purposes of pre-construction monitoring against which to measure any change during the construction of the wind farm. The maximum scope of the ecological monitoring survey has been defined within the Supporting Information Report Section 2 and within the Report to Inform AA screening, Section 4.1. The scope of monitoring surveys has been defined in accordance with Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects (DCCAE, 2018). A broad suite of activities is included

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	within the application and the final scope of ecological monitoring will be agreed in consultation with the appropriate statutory agency. **Cumulative Impact:** The Applicant noted that section 7.4 of the Report to Inform Appropriate Assessment Screening provides a screening of projects and plans within a 30 km buffer of the Foreshore Licence area. Section 4.3 of the NIS provides the assessment for those projects screened in for combination assessment. Using the precautionary approach projects were screened in for further assessment where there was, in the absence of definitive timings, potential for overlap both temporally and spatially with the surveys subject to this application. Consideration was given to the likelihood for all projects to be undertaken sequentially or simultaneously. Further to these assessments, it was concluded that there will be no potential for adverse impacts on the integrity of the European sites concerned as a result of the project alone or in combination with other plans or projects. The Applicant highlighted the Natura Impact Assessment of the surveys which were the subject of an earlier Foreshore Licence, FS007029 concluded that there was no potential for adverse effects on the integrity of the concerned European Sites to arise as a result if the proposed survey activities. The surveys which have been undertaken in 2021 under Foreshore Licence FS007029 include geophysical surveys, ecological grab sampling and the deployment of buoys for the collection of wind, wave and current data. No further works under FS007029 will be undertaken and therefore there is no potential for temporal overlap with the surveys proposed under this current licence application. The Applicant concluded that the observations raised regarding "Article 4(3) and Annex III" and an alleged breach of "Article 4(4)" are not fully understood as those references do not appear to be to the Habitats Directive. Insofar as the reference is to the EIA Directive, the

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	site investigations are not a project type to which that Directive applies.
Submission 12 This was an objection to the above application on the basis of the proximity to the shoreline and the detrimental effect on the surrounding area, among several other factors.	The Applicant notes that no information was provided in the submission explaining the basis on which proximity to the shoreline was a concern. The Applicant did not make a response to this submission. The Foreshore Licence Application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable corridor to shore and associated infrastructure only. The proposed activities are being undertaken in close proximity to the shoreline as submarine electricity cables are required to connect to the existing national electricity transmission system on land. In relation to potential detrimental effects, the application was accompanied by an Environmental Report (Annex C of the application) which assessed potential environmental effects and also included a range of environmental commitments to minimise or eliminate these effects (refer Summary of Mitigation Measures in Appendix A of the Environmental Report). Any effects associated with these investigations will be limited in duration and spatial extent and will not therefore have detrimental effects on the surrounding area. The proposed survey activities are temporary in nature. The proposed wind farm itself will be the subject of a separate development consent application in due course in accordance with the requirements of the Maritime Area Planning Act, 2021 and its associated consent framework.
Submission 13 Kilkenny Bay Community Council The Community Council submitted that the following is lacking in this application for this Foreshore Licence: Reference to historic applications for a single proposed project, and concomitant historic failures in winning a Foreshore Licence, with reference to making provision to rectify these before a new Foreshore Licence process can proceed.	The Applicant noted that the Foreshore Licence application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route to shore and associated infrastructure only. In the absence of any risk of adverse effects on the integrity of a European site, there is no obligation to consider alternatives to the proposed Foreshore Licence application.

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Consideration of alternative sites: In an application for a Foreshore Licence, it is necessary for the applicant to consider alternatives. (This applies to both Lease and Licence applications.) A visual representation of the proposed turbines in Killiney Bay. We cite the Offshore Energy Strategic Environmental Assessment Review and Update of Seascape and Visual Buffer study for Offshore Wind farms Final Report for Hartley Anderson March 2020. Visual impact studies consider impingement on shorelines to be critically important, especially adjacent to high amenity tourism beaches. In connection with these omissions, Killiney Bay Community Council (KBCC) noted the following protections proposed for Killiney Bay: • Killiney Bay is adjacent to the southern end of the UNESCO Dublin Bay Biosphere Partnership. This includes management by Fingal County Council, Dublin City Council, DLR County Council, Dublin Port Company and the National Parks and Wildlife Service of the Department of the Arts of Housing, Local Government and Heritage and the Gaeltacht. We have initiated a proposal to obtain an extension of the Biosphere to include Killiney Bay. • Killiney Bay includes the Special Area of Conservation area, as per the Dun Laoghaire Rathdown County Council Supplementary Map of the Ecological Network adjacent to Dalkey Island: • https://www.dlrcoco.ie/sites/default/files/atoms/files/supplementary_map_b1_ecological_network_map_1.pdf • Killiney Beach is the recipient of the Bord Failte Grant of approximately €1M for the construction of an amenity centre for watersports. See https://www.failteireland.ie/tourism-news/19m-investment-announced-water-based-activity-facilities.aspx In the context of these protections, KBCC examine the proposed objective to install 40-61 turbines, 240 to 310 metres high, on the Bray and Kish Banks. Analysis of the extensive detail presented in this RWE Renewables Ireland Geophysical site investigation, reveals an intention to construct the platform for	Subject to obtaining a MAC, the proposed windfarm will be the subject of an application for Development Consent under the Maritime Area Planning Act, 2021 and its associated consent framework. An assessment of the alternatives and reasons for site selection will form part of the EIA and Appropriate Assessment for that application, which will also include an assessment of the potential impact the wind farm may have on a range of receptors including seascape and visual amenity. The Applicant stated the proposed wind farm boundary has not been amended by this licence application, and is co-incident with the geotechnical survey boundary as shown in Drawing 3 of Annex B to the Foreshore Licence application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east. The Applicant noted the application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route to shore and associated infrastructure. The Applicant referred to its response with respect to any future application for development consent, subject to securing a MAC. **Navigation Issues** The Applicant noted this application is for a Foreshore Licence for ecological monitoring and site investigation works only. In the absence of any risk of adverse effects on the integrity of a European site, there is no obligation to consider alternatives to the proposed Foreshore Licence application. **Geotechnical Survey Issues**

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the proposed turbines on one inshore site, the Kish and Bray Sandbanks, 9 km from Killiney Bay. This is not a site evaluation. This is preparation for site construction. The term "Ipse Dixit" is appropriate in this case: the assertion is, "this is just how it is". This de facto sense of ownership by RWE Renewables of these sandbanks is controlled by opting out of alternative arguments: declaring that this issue is intrinsic, and not open to change. This logical fallacy uses an assertion that the Kish Bank and Bray Bank square, as shown on Dublin Array site maps, is the only site available in Killiney Bay. KBCC looked at the alternative choices: • Should the Array of this dimension be installed 9 km distant from Killiney Beach? • Should 40-61 turbines, 240 to 310 metres high be allowed to gate, or fence off, the horizon? Should the Array be installed further out, at 22 km? • Should the Array consider more innovative technologies such as 'Floating turbines'? In this regard, KBCC considered navigation issues and geotechnical survey issues. **Navigation Issues** KBCC believe that the information it receives from RWE Renewables does not 'provide complete, precise and definitive information capable of removing all reasonable scientific doubt as to the effects of the works' with reference to the selection of a 22 km distance for the installation of floating turbines. KBCC noted the proximity of the Array to a confluence of shipping lanes, as described in 4.6 Navigation, Document Number 003747593-01: The busiest of these shipping lanes originate and depart from Dublin Port, located to the North West of the survey area. Dublin Port caters for freight, passenger and cruise liners. In 2019 Dublin Port processed 38,100,000 tonnes of freight together with 1.949 million passengers and 158 cruise ships. The total number of ship arrivals was 7,898. Although the distance between Dublin Port and Holyhead is 113 km, there is capacity for the construction of floating turbines at, or within, the 22 km distance from shore recommended by the EU.	The Applicant noted the site investigations (geophysical and geotechnical) which are proposed in the current Foreshore Licence application are for the purpose of further investigating the stability of soils and sediments in the area of the proposed turbine foundation locations, inter-array, and export cable routes to the selected landfall location(s) to inform the iterative design and assessment process. The Applicant stated the proposed boundary of the wind farm area has not changed. The "pre-construction surveys" the correspondent refers to are ecological monitoring surveys, including mobile surveys and deployment of static acoustic monitoring devices. Where ecological monitoring is required it is best practice to acquire a number of years of baseline data and for this reason The Applicant is seeking permission to commence ecological monitoring, if required, in 2023. Monitoring is proposed within the proposed wind farm development boundary but also within the surrounding area, as shown in the drawings provided in Annex B of the application documents to enable monitoring for potential far field effects. For this reason only the Foreshore Licence area has been increased. The proposed surveys and site investigations will have no impact upon the integrity of the Kish and Bray Banks. The proposed surveys and site investigations are independent of any potential construction or operation of a wind farm, which is subject to obtaining a MAC and securing development permission in accordance with the Maritime Area Planning Act, 2021 and its associated consent framework. The Applicant stated the proposed wind farm boundary has not been amended and is co-incident with the geotechnical survey boundary as shown in Drawing 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices, they are not limited to within the proposed wind farm development

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KBCC noted that in this context, the selection of an alternative site for floating turbines at, or within, the distance from shore of 22 km, must be carried out. This is a condition for an application for a Foreshore Licence: that it is necessary for the applicant to consider an alternative site. (This applies to both Lease and Licence applications.) **Geotechnical Survey Issues** KBCC believes that the information provided does not 'provide complete, precise and definitive information capable of removing all reasonable scientific doubt as to the effects of the works' with reference to: **The integrity of the Kish and Bray Banks.** The term 'pre-construction survey' or 'Array area' determines and reinforces and confirms the premise that this will be the area identified for construction, regardless of distance from shore, height of the turbines or ecological effect. The effects of the works proposed, in connection with the site investigations to be employed in the installation methodology of this Geotechnical Survey, far exceed the limits of previous surveys. Therefore we request an alternative model of the Site Investigations for the proposed Dublin Array Offshore Wind Farm. KBCC questioned the purpose of the Geotechnical Survey of site Investigations for the proposed Dublin Array Offshore Wind Farm. Although RWE Renewables state there is a necessity to examine foundation design, the size and installation methodology and to finalise cable route and landfall design and installation methodology, KBCC considers this work as effective preparation for construction. RWE Renewables Site Investigations for the proposed Dublin Array Offshore Wind Farm far exceed the scope of previous surveys of the Kish and Bray Banks, which adhered to a limited definition of such investigations. RWE Renewables' description of the machinery required for foundation design and installation methodology far exceed the limits of previous surveys, and do not appear to have respected the extensive and relevant information already collected about the formation and ecology of these sandbanks, and their role in the mitigation of coastal erosion. The following site preparation tests, outlined in RWE's Site Investigation document, have a survey purpose, and, as KBCC understand this, the inclusion of	boundary but also within the surrounding area to enable monitoring for potential far field effects and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east. The wind farm design is an iterative process informed both by engineering and environmental studies and surveys. A geophysical survey of the proposed development, including ecological sampling, was undertaken in 2021. Data from that campaign has been incorporated into our understanding of the site and the wind farm design development process. The site investigations, including geophysical and geotechnical surveys, which are the subject of this Foreshore Licence application are the next stage in this process and will provide more detailed information based on the preferred layout and design parameters which are emerging. The proposed surveys will have no impact upon the integrity of the Kish and Bray Banks nor upon coastal erosion. The proposed windfarm will be the subject of further consultation in the future as part of the Development Consent process under the Maritime Area Planning Act, 2021 and its associated consent framework. The Applicant stated that the Foreshore Licence application is for site investigation and ecological monitoring only. It does not include permission for any site preparation nor permanent installations. The Natura Impact Statement included in the application documents, Annex F, includes an assessment of the likely significant effects on the conservation objectives of the Rockabill to Dalkey SAC arising from the proposed site investigation and ecological monitoring activities. Based on the assessment of the proposed surveys alone and in-combination with other projects and plans, with mitigation measures in place, it can be concluded that no adverse effects on the integrity of the European sites will arise. The Applicant concluded that Annex F includes an Article 12 Assessment for all cetaceans which are Annex IV species, i.e.

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an installation purpose, which will irrevocably damage the Kish and Bray sandbanks, even if restoration work is carried out. See 4.2 Impact Assessment Predicted Effects included in RWE Renewables Site Investigations for the Proposed Dublin Array Offshore Wind Farm, FS007188Annex C - EIA Screening and Environmental Report. The machinery required for foundation design and installation methodology: Cone Penetration Tests (CPTs) in the Array area and the export cable corridor: Up to 61 seafloor CPTs up to an approximate geologically shallow depth of 80m below seafloor are proposed within the Array area and 31 CPTs to an approximate depth of 6m below the seafloor in the export cable corridors which extend into the Arra, 3 In the subtidal locations a CPT rig will be lowered to the seafloor from a suitable vessel by a deck mounted crane or A-frame. An instrumented cone, with a diameter of approximately 40mm, will then be pushed into the seabed at a constant speed. Continuous measurement of the cone end resistance, the friction along the sleeve of the cone and the pore water pressure will be recorded. The cone will then be recovered to the rig and the rig returned to the vessel. The duration of operation at each CPT location within the array area is expected to be up to 6 hours. In the intertidal area a similar process will be undertaken from a tracked vehicle. Vibrocores will be taken across the export cable routes which extend into the Array. Up to 48 vibrocores, approximately 150 mm diameter and penetration depth of up to approximately 6 m will be taken. Five of the 48 vibrocores may be located within the intertidal areas. A vibrocore rig will be lowered to the seafloor from a suitable vessel by a deck mounted crane or A-frame. A vibrocore head will be attached to the core barrel and will induce high frequency vibrations in the core liner. The sediment in immediate contact with the core barrel forms a 'liquefied' boundary layer enabling the core barrel to penetrate the sediment strata. A core catcher is attached to the end of the barrel which holds the sediment inside the barrel when withdrawn from the sediments. Each core would have a sediment sample volume of approximately 0.05 m3. The expected duration of the vibrocoring operation at each location is less than 5 minutes. In the intertidal a similar process will be undertaken from a	European Protected Species (EPS) listed under Annex IV of the Habitats Directive, which are protected wherever they occur, it is an offence to deliberately capture, kill, injure or disturb such species. With the proposed mitigations in place, as specified in DAHG, 2014 the Article 12 Assessment concludes that no marine mammals whose range may overlap the survey area will be impacted or disturbed by the proposed activities.

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tracked vehicle. The cumulative time dedicated to vibrocores will be 150 days, continuing the full 24 hours. Boreholes Up to 61 subtidal boreholes to a geologically shallow depth of 80 m below seafloor are proposed within the array area to target proposed foundation locations. A borehole is a method of drilling into the seabed to recover samples and enable downhole geotechnical testing to be completed. A drilling head is lowered to the seabed via a drill string with an outside diameter of up to 254 mm and stabilised using a seabed frame. The drill string is then rotated to commence boring. Tools are lowered into the drill string to recover samples or conduct in-situ soil testing. The drilling flush and drill cuttings are largely returned to the vessel and re-used or returned to shore for disposal, however some loss of flush and cutting should be expected. All drilling fluids will be fit for purpose and where possible selected from the 'OSPAR List of Substances/Preparations Used and Discharged Offshore which are considered to Pose Little or No Risk to the Environment'. The offshore boreholes will be left to back-fill naturally. The duration of the operations at each borehole location within the array area is expected to be approximately 48 hours. Four boreholes are also planned at each of three possible landfall locations (i.e. 12 in total). The nearshore boreholes will be in water depth of 0 to 7 m and will be to a target depth of 45m below seafloor. The external diameter of the drill pipe will be approximately 100 mm. The nearshore boreholes would either be backfilled or grouted to within 2m of surface of the base of mobile sediment typically using a 2:1 bentonite cement mix. The surface will be reinstated to previous condition as the investigations at each location are completed. Pre and post investigation site photographs will be taken. The duration of the operations at each borehole location within the intertidal area is expected to be approximately 36 hours. KBCC noted that the effect of constant noise over long periods of time on porpoises, seals and other cetaceans will be devastating. Most of these gather in the crook of the north end of Killiney Beach, continuing onward through the curve to White Rock, and on to Dalkey Island, and are adjacent to the SAC area as noted in the supplementary map listed below. KBCC trusts that the Department of Housing, Local Government and Heritage will take these observations into consideration regarding the above application.	

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Submission 14 **Wild Ireland Defence CLG** Wild Ireland Defence CLG had the following comments in respect of the foreshore licence application: The following submission is made in good faith and based on concerns regarding environmental protection and the current dire and worsening state of biodiversity at national and international levels. Biodiversity loss has been identified as a planetary emergency. A report published by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBS) in 2019 highlights that: "Nature is declining globally at rates unprecedented in human history — and the rate of species extinctions is accelerating, with grave impacts on people around the world now likely, ... " (available at: https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/) The 2019 'Status of EU Protected Habitats and Species in Ireland' Report indicates the declining state of our most valuable habitats and species in our care. The environmental NGO Irish Wildlife Trust (IWT) comments that the report paints a dire picture for biodiversity in Ireland and once again stresses the depth of the extinction crisis here: "The report, presented to the European Commission, shows that 85% of our habitats are in 'unfavourable' condition and that there have effectively been no improvements since the last report was published in 2013. It shows that our native woodlands, sand dunes, bogs, uplands, lakes, rivers and marine habitats continue to be in poor condition while a massive 45% are considered to be deteriorating – something which is unacceptable and in contravention of EU law. While the picture is somewhat better for species, with 57% of those assessed at 'favourable' status, there continues to be no improvement in status for species such as Atlantic Salmon, the Freshwater Pearl Mussel or the White-clawed Crayfish which are all threatened with extinction. (Available at: https://iwt.ie/press-release-new-report-highlights-the-extent-of-the-irish-extinction-crisis/) In May of 2019 the Dáil declared a state of National Biodiversity Emergency. However, Ireland failed to meet its international target of protecting ten per cent of its marine environment by 2020 having designated just over two per cent of Irish	The Applicant noted that all application documents, including the Natura Impact Statement prepared by it, have been made available for public and prescribed body consultation. The public participation requirements of the Aarhus Convention, Article 6, insofar as they apply to decision-making under the Habitats Directive, requires the public participation to occur at an early stage in the decision-making procedure, and for the competent authority (DHLGH) to make available to the public such expert advice or reports or other evidence as are available to the competent authority at that time. The Applicant noted that the correspondent's complaint appears to be that the competent authority's Habitats assessment and the observations and submissions of statutory consultees were not made available to the public, despite that they were not available to the competent authority at that time. The Aarhus Convention further provides that such information relevant to the decision-making procedure should be made available to the public with the notice of the decision made. Further, SI 293/2021 now provides that, where a competent authority determines that Appropriate Assessment is required, the competent authority shall ensure that before a determination is made, the public are consulted in relation to the matter. The Applicant stated that in light of the above, the correspondent's complaint regarding the information made available for the purposes of consultation with the public is misconceived. The Applicant noted the names of individuals have been redacted by DHLGH in accordance with their policy on General Data Protection Regulation (GDPR). The Applicant noted that this application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route(s) to shore and associated infrastructure.

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waters with protection status. The following article notes Ireland's performance as the second lowest percentage in Europe; a disheartening fact when one considers that Ireland possesses a marine area ten times greater than her land mass. Ireland has an international target of protecting 10 per cent of waters by 2020 and 30 per cent by 2030. Currently, just over two per cent of Irish waters are protected, the second lowest percentage in Europe. The vast majority of this is for estuarine and coastal waters, with little to no protection of Irish deep-sea waters to date despite possessing a marine territory 10 times our land mass. (Available at: https://greennews.ie/seanas-pass-motion-state-protect-marine-life/) Responding to the ecological crisis at an international level the EU Commission concludes that both the Habitats and Birds Directives (providing strict protection for protected habitats and species) remain fit for purpose. However, the need to better implement both directives is emphasised: Commission evaluation shows Nature Directives are fit for purpose On 16/12/2016 the Commission has published the'Fitness Check' evaluation of the EU Birds and Habitats Directives (the 'Nature Directives') and concluded that, within the framework of broader EU biodiversity policy, they remain highly relevant and are fit for purpose. … However, full achievement of the objectives of the Nature Directives will depend on substantial improvement in their implementation in close partnership with local authorities and different stakeholders in the Member States to deliver practical results on the ground for nature, people and the economy in the EU. (Available at: https://ec.europa.eu/environment/nature/legislation/fitness_check/index_en.htm) Our costal and marine environments are experiencing ever increasing pressures from various developments, including the development of offshore alternative energy. These developments must be reconciled with meeting the State's commitments regarding environmental protection. Blind faith in technologies termed 'renewable' fails to mitigate loss of biodiversity. It is imperative that all EU legal instruments supporting the sustainable development and coexistence of relevant but conflicting activities in our marine environment are fully and	The Applicant referenced section 1.5 of the Supporting Information Report which was submitted as part of the application includes a summary of previous Foreshore applications made for Kish Offshore wind farm and Bray Offshore wind farm, collectively referred to as Dublin Array. The Applicant noted that the proposed windfarm will be the subject of a development consent application in accordance with the Maritime Area Planning Act, 2021 and its associated consent framework. The Applicant directed the consultee to the previous response setting out basis for legislative designation of 'relevant MAC usage' under sections 100 and 101 of the Maritime Area Planning Act 2021. The Applicant stated that the limited geographic and temporal scope of the proposed surveys and the nature of the site investigations is such that there could be no interference with the designation of MPAs or the attainment of the objectives of such designations. The Applicant stated their approach and methodology to screening and undertaking the Appropriate Assessment is consistent with relevant Irish and EU guidance (Section 2.2 of the Report to Inform Appropriate Assessment Screening, Annex E) to ensure compliance with the Habitats and Birds Directives. The application documentation is subject to assessment and submissions from statutory bodies (including those with responsibility for environmental protection) and the general public). As the consenting authority the Minister (and Department of Housing, Local Government and Heritage) assess the application and submissions and the decision is informed by the requirements of the EIA Directive and the Habitats and Birds Directives. The Applicant concluded that no basis has been provided for the correspondent's conclusions that the application is inconsistent with the State's obligations under the Aarhus Convention. The Applicant prepared the foreshore licence application and submitted the necessary information in accordance with the requirements of the

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consistently implemented. The achievement of Good Environmental Status as provided for in the EU Marine Strategy Framework Directive must prevail. The foreshore licence application (FS007188) presented to the public is incomplete. Absent for consideration are statutory environmental protection assessments and related determinations by the relevant competent authorities as required under EU legislation. Absent also in the submitted application are the expert observations of statutory consultees and relevant environmental NGOs relating to possible environmental impacts of the proposed foreshore development. The application form and supporting documents released to the public contain information which has been redacted. It is unclear why the public has been denied access to the redacted information. The redacted data compromise matters surrounding the objectivity, validity, scientific quality, and transparency of processes at issue. It is unclear from the information submitted whether the proposed Offshore Windfarms to which the foreshore licence application pertains have been granted foreshore lease consents or not. Concern is raised regarding the possibility of the circumvention of relevant statutory EU environmental impact assessments. It appears that site investigations have been in operation under various foreshore licences for twenty one years (since August 2000) for projects which may or may not have foreshore development consents. The supporting information submitted by the applicant indicates that the current foreshore investigation licence application is sought in order to provide "a more comprehensive geotechnical investigation" compared to previous geophysical survey fieldwork conducted between February and May 2021 under Foreshore licence FS007029. (2021, 'Foreshore Licence Application for Site Investigation and Ecological Monitoring', Section 1.5, 'Previous Foreshore Lease/Licence Applications'). It is essential that the error of project splitting is avoided in statutory assessments. Considering the location, nature and size of the project at issue, it is unclear why the competent authority would determine a Stage 2 assessment under the provisions of the Environmental Impact Assessment Directive unnecessary.	Department of Housing, Local Government and Heritage. The Applicant referred to all previous responses setting out how the proposed site investigations licence application is wholly consistent with both the Habitats Directive and the Birds Directive. The EIA Directive is not applicable to the proposed site investigations.

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In addition it is crucial that any foreshore licence consent granted demonstrates support for a coherent scientifically based network of marine protected areas as envisioned by the EU Maritime Spatial Planning Directive. The foreshore licence application subject to public consultation fails to demonstrate compliance with the State's obligations under the Birds and Habitats Directives. The competent authorities must ensure that the statutory Appropriate Assessment screening attains the precise objectives of the assessment as required under the provisions of the Habitats Directive and as set out in Kelly v. An Bord Pleanála [2014] IEHC 400 and in the CJEU decision in case C-323/17. At this time of unprecedented loss of biodiversity it is critical that the competent authorities ensure that the appropriate assessment to be conducted clearly demonstrates the precautionary principle which underpins the Habitats Directive as derived from the EU Treaty and is developed in the case law of the CJEU and Irish courts. As noted above, it appears that the Foreshore Licence application at issue (referenced FS007188) is inconsistent with the State's obligations under the Aarhus Convention and EU environmental protections directives, e.g. the Birds and Habitats Directives and the Environmental Impact Assessment Directive.	
Submission 15 Private Submission The observer has concerns as the survey area has expanded to include a larger area of foreshore at Killiney/Shanganagh and Hackettsland townlands in South Killiney Bay. The observer has noted the following: **River Estuaries** **Shanganagh River**: A healthy salmonid river 50 years ago and still supports Sea Trout, possibly eel and mammals such as Otter along the wetland and wildlife corridor to Loughlinstown Woods pNHA upstream where lamprey were observed in spring 2021. The river mouth is within a few hundred metres of the apparent cable corridor route and undersea trenching and borehole drills. It is part of the Dublin Urban Area Rivers Life Project. Water quality took a dip in midsummer 2021	The Applicant noted that the site investigations (geophysical and geotechnical) which are proposed under the current Foreshore Licence application will be focussed on the locations of the proposed turbine foundations, inter-array, and export cable routes to the selected landfall location(s) which are being refined in the course of the iterative design and assessment process. The proposed boundary of the wind farm area and export cable corridors has not changed since the previous Foreshore Licence application FS007029. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects. For this reason only the proposed survey area which is the subject matter of the foreshore licence has been increased when compared with a previous application.

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Deansgrange River Estuary: though culverted, this discharges via a narrow channel on to the shore. Though the rivers typically discharge to the sea in meandering channels and form lagoons the natural process has been disrupted by necessary regular dredging on the shoreline as a flood prevention measure (DLR) Both rivers showed a dip in water quality in summer 2021 probably due to upstream pressures. Scum in the Shanganagh lagoon in May was queried and may have been due to tidal algal bloom being trapped in when the seawater retreated. There may also have been impacts on shoreline biota in 2021 with impacts on Baseline Data in Fugro ship survey. **Flood Risks** This section of shore is now at High Risk for Coastal Flooding (see flood maps attached to DLR Draft County Development Plan in November 2021) and still in an extended public consultation period. The combined risks of coastal flooding, pluvial and alluvial flooding and occasional flash floods in the past 12 years have to be factored in to shoreline survey activity with reference to the latest information, CFRAM and DLR Coastal Flooding Reports. The latest Flood maps have only recently been made available on-line for public viewing. River channels must be kept open to prevent serious upstream flooding that can put lives and homes at risk. The enclosed space between old and new railway lines and bounded by the rivers is a natural Flood Plain which saturates quickly in times of heavy rains. There is a large area of reed bed and a wildflower meadow. In summer 2021 there was a bore site in this field to investigate ground water and boulder clay in this green area and also at the beach access point at the railway underpass. It was hoped to drill down 25 metres. Results are not yet available to the public. Rock hard boulder clay would quickly prevent deep drilling. The clifftop green also saturates quickly and required extra drainage measures along the paths in the past two years. It was always a soggy zone after rains and difficult terrain for walkers.	**River Estuaries** The Applicant noted the information and data sources provided in the response. Physical disturbance of seabed habitat arising from the proposed geotechnical sampling locations, on the south side of the Shanganagh Waste Water Treatment Plant, will affect a very small area and any effects will be highly localised. No impact to water quality within the Shanganagh River, which enters the sea approximately 0.25km to the north of the proposed works, nor the Deansgrange River are anticipated to occur due to nature, scale and location of the proposed surveys. There is no possible pathway between the non-intrusive geophysical surveys conducted in the area in 2021 and shoreline biota. The Applicant noted these surveys did not disturb the seabed nor mobilise seabed sediments. Shallow benthic grab samples (0.1m2) were undertaken as part of the 2021 survey, however the closest subtidal sampling locations was located approximately 3km offshore. Given the distance from shore and the very limited area of seabed disturbance no effect on shoreline habitat could have occurred. AQUAFACT International Services Ltd. conducted an intertidal survey at Shanganagh in March 2021 on behalf of the Applicant. This comprised a walkover survey and shallow cores of 15cm diameter at the upper, mid and lower shores along two transects, one in the proximity of the WWTP the other further south near Shanganagh Park. The nature and extent of these activities, conducted by experienced ecologists, would not have had any impact on the biota present on the shoreline. **Flood Risks and Erosion** The Applicant noted the potential landfall locations along this stretch of coast have been selected with consideration of flood risk and rates of coastal erosion. The proposed surveys which are the subject of this Foreshore Licence application will not hinder the river channels and have no implication for flood risk nor increased rates of erosion due to the nature, scale and location of the proposed surveys.

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Erosion The soft glacial cliff north of the Shanganagh River has rapidly accelerating erosion and is now shedding aged rusted metal and other material which indicates there was some ad hoc dumping in past decades. This may also impact on the Council vehicle services area and dirt ramp from cliff top to the shore which was used for vehicles in the recent Corbawn rock armour works. Strong storms also impact on upper shore area with a reduction in stable grassy turf along the upper shoreline perimeter. **Geogenic Reef to the north of the Deansgrange River.** This requires a full ecological survey more than once a year due the seasonal variations in eco systems. A diving survey would be useful in case anything of importance is missed. The reef is often frequented by up to a hundred birds at mid tide and was once a stopping off point for hundreds of passing geese around St Patrick's Day every year we were told by an elderly observer some years ago. **Infrastructure** We were glad to see that the Bray Shanganagh Wastewater Treatment Plant on the clifftop has been referenced along with the long Shanganagh Outfall Pipe on the cliff below and the short stormwater overflow pipe in the seabed as these will require due caution in the siting of an cable link. Local residents, DLR and a local councillor all made reports about the missing marker pole on the shore to Irish Water in autumn 2020 which has not been replaced and may indicate present or older seabed pipes. There were concerns on the grounds of health and safety. There was to be 'investigation' but no sooner than the third quarter of 2021. No recent feedback on this. There seems to have been little consultation with Irish Water referenced so far in the application about possible landfall cable links on the shore area immediately below the plant and close to the outfall pipe. There are also mainline sewers to the plant embedded within the clifftop zone. **Potential Explosions due to accidental mixing of electricity and sewage gas** There is concern about potential hazards when high voltage cables are run in proximity to undersea outfalls with sewage gas or clifftop cables as it can be an explosive mixture.	Areas of potential stony reef were identified in the nearshore areas along the cable route at Shanganagh, during the geophysical surveys conducted under Foreshore Licence FS007029. The ecological survey which was conducted under the same licence recorded video and photographic stills of the area of stony reef. The maximum scope of the ecological monitoring survey proposed under this Foreshore Licence application has been defined within the Supporting Information Section 2 and within the Project Information Section 4.1 and method statements provided in Section 4.2 of the Report to Inform AA screening. Intertidal and subtidal sampling sites will be selected following review of the most up to date geophysical and environmental data, to identify the presence and extent of sensitive features including subtidal geogenic reef. Sampling will be preceded by drop down video and images reviewed to ensure no impact on reef features, sampling locations will be micro-sited as required. **Infrastructure** The Applicant noted the proposed site investigations which are the subject of this application will only occur in the foreshore and will have no impact upon the infrastructure in the vicinity referenced due to the nature, location and scale of surveys proposed. **Archaeological Heritage** The Applicant noted the site investigations which are the subject of this application will have no impact upon the terrestrial or coastal heritage assets in the vicinity due to their scale, nature and location. The Applicant referenced the Marine Archaeology Assessment, Annex D of the application documents includes an extensive description of both the maritime and coastal archaeological features all of which have been taken into consideration in survey planning undertaken to date and in preparing the application documentation.

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Please note: Space for an extra tank at the WWTP was factored into the design to accommodate the major increase in population at Cherrywood town. This was expected to be constructed after 2020. **Other Infrastructure** The immediate upper shore has a popular walkway and plans for a cycleway along the narrow path on top of the **old railway line embankment** which functioned till about 1912 **Bridges** There is a fine granite stone bridge over the Shanganagh River estuary one of the earliest railway bridges in Europe. This may have a weight bearing limit. A narrow wooden and metal bridge was constructed over the Deansgrange River in 1990. **Existing Paths** The narrow pedestrian paths on the old embankment which are also used now by cyclists would not be suitable for persistent heavyweight construction vehicles. While providing a raised walk-way with appealing views it also functions as a protective berm bank and storm buffer. The clifftop path is a narrowed version of the temporary haul road for the building of the Waste Water Treatment Plant. **Future Infrastructure** may include a substation and other works to the north of the Deansgrange River on the upper shore according to recent Codling Windfarm maps as another company is competing for use of the same potential landfall space for cables. **Archaeological Heritage** Though mid 19th century structures predominate, there are two earlier structures...a ruined stone battery on the eroding clifftop and a Martello Tower north of the Deansgrange River which may also have been the site of a earlier dolmen or tomb which suggests a long pattern of settlement. Geological Heritage of the Glaciated Cliffs between Killiney and Bray. These are frequently studied by secondary students, university students and other specialist geological groups.	The site investigations which are the subject of this Foreshore Licence application will have no impact upon the cliffs between Killiney and Bray due to their nature, scale and location. **Amenity Area and public access to paths and shoreline** The Applicant noted the site investigations which are the subject of this application will have no impact upon the amenity areas on the clifftop. Suitable access to the beach at Shanganagh will be agreed with Dun Laoghaire Rathdown County Council prior to commencement of the works, similarly access to the Poolbeg intertidal area will be agreed with Dublin City Council. Small areas of the beach around the geotechnical sampling locations will be closed to the public for safety reasons during the works for short periods of time. The Applicant stated they have committed to reducing the extent and duration of these closed areas as far as practicable. **Biodiversity Concerns** The Applicant noted that the application documents include an EIA Screening and Environmental Report (Annex C), Report to Inform Appropriate Assessment Screening (Annex E) and Applicant's NIS (Annex F). The assessment approach follows the source-pathway-receptor model to identify the possible effects arising from the works, the route by which these effects may be experienced by receptors. An Environmental Appraisal is presented in Section 4 of Annex C, which considers amongst other topics, potential effects upon benthic subtidal and intertidal habitats, fish and shellfish, birds and marine mammals which may experience effects from the proposed works, i.e. where all the elements of the source-pathway-receptor model are in place. Annex C concludes that the nature, scale and location of the proposed site investigation and monitoring is such that there are no foreseeable significant effects on the environment arising from the activities. Annexes E and F are primarily focussed on receptors which are qualifying interests of a Natura 2000 Sites and cetaceans which are listed under Annex IV of the Habitats Directive.

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Amenity Area and public access to paths and shoreline This is a very popular and busy amenity area used by hundreds of people from near and far during Covid lockdown. Walkers, runners, dog walkers, cyclists, some wheelchairs, e-scooters, picnickers, pram and buggy users were all competing for space along with bathers and people undertaking water activities with canoes, paddle boards and inflatable boards. Anglers fish near the Shanganagh River Estuary. People of all ages and abilities use the area for their regular daily exercise and there are well established rights of way from access points and along paths between Shankill and Killiney. The green clifftop area provides two playing fields used by various clubs along with a community muga pitch and allotment gardens. At times there are incidents of anti-social behaviour with environmental impacts by a tiny minority. The immediate hinterland has an enclosed meadow space. **Biodiversity Concerns** While the licence application describes the character of the shoreline and sediments and includes the geogenic reef, it does not give a full picture of the marine biota and integrated shoreline eco systems. Fauna: Marine mammals, fish, marine birds on the geogenic reef, lagoon and clifftop birds, sandmartin colonies in the nearby Shanganagh Cliffs (referenced by Niall Hatch of Birdwatch Ireland reporting on Mooney Goes Wild on RTE One in the spring) are not referenced along with shoreline bumble bees, up to 16 possible varieties of shoreline and clifftop butterfly, bats, otter and further species. In the past decade bird observations have included visiting geese, little egret, lapwing and kingfisher. Observations by Dublin Array include some of the algae to be found but not all, and some smaller fish species which were not observed may be present. Snorkellers have made further observations. While eutrophication brings extra growth of some green ulva digitalis this also masks other varieties at times. We were glad to see that Fucus Serratus and Laver seaweed were recorded along with worms on the reef, sandmason and sandhoppers. The D19 Butterfly Transect which included the upper shore and clifftop has been monitored for over ten years for the National Biodiversity Data Centre. Otter Survey 2021 (DLR)	In the application documentation the applicant has committed to the appointment of an ecologist to supervise the works within the intertidal areas. The ecologist will undertake a pre-commencement walk-over survey to identify sensitive habitats, including Zostera noltii, marram grass and annual vegetation drift lines, the sampling locations will be micro-sited to avoid impacts on sensitive habitats. Reinstatement of the intertidal habitat will be carried out to pre-survey conditions. Pre application consultation with NPWS confirmed the appropriateness of the mitigation measures proposed. **Public information Signage** The Applicant noted the comment in relation to public information. The Applicant stated when the specific location of the infrastructure which will be the subject of development consent application under the Maritime Area Planning Act, 2021 has been identified, relevant maps and drawings will be made available as part of a public consultation procedure for the development consent process, and will ensure that the locations are clearly understandable. **Other Comments** The Applicant noted this Foreshore Licence application is for permission to undertake site investigation and ecological monitoring only. The proposed windfarm will be the subject of a development consent application in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. The location of any infrastructure will be clearly identified in the development consent application when the planning stage design has been completed. The application for development consent will be accompanied by an Environmental Impact Assessment Report which will include an assessment of the potential impact that the proposal may have on a range of receptors including seascape, marine mammals, birds, navigation and the physical environment. Any such application will be subject to public participation.

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Flora: Drift Line vegetation features Sea Holly and a number of other marine shore species including a rarer one. Together with Fringe Vegetation and some clifftop plants there is a wide range of wildflower and plants throughout the seasons of the year. This is where 'the meadow met the sea' AIS: Giant Hogweed is now encroaching on the shoreline shingle and needs to be taken into consideration to prevent further spread if there is soil disturbance. Shore biota are already under pressure from constant trampling especially during most restrictive pandemic times and this can be observed on the latest Google Earth maps. Birdwatch Ireland and the Dublin Field Naturalist Club have included the beach and clifftop areas in specialist field trips and it is easily accessed by public transport. There is a **legal imperative to Protect, Preserve and Restore** existing Biodiversity and if in doubt apply the **Precautionary Principle** to avoid long term environmental damage. **Public information Signage!** It would be very helpful to promote greater public engagement by providing site maps of cable link proposals with a link to the plans at public beach access points in Killiney, Bayview railway underpass Killiney, Shankill beach access point and Shanganagh Cliff/Rathsallagh Estates Shankill as happens in the Terrestrial Planning process. **Other Comments** Please note: the original licences for exploration of the Kish and Bray banks were granted in 2000 before the increasing evidence of Climate Change, stronger storms and increased flood risks along with coastal Erosion in this area. The construction of the Waste Water Treatment Plant (DBO) was at the early planning stage in 2007 and took nearly 7 years to complete so may not have been taken into account in earlier licences seeking landfall cable sites or taken into proper account. Urban expansion has brought increased pressures to the shoreline area along with increased appreciation of its merits. Cable Link site at 'Shanganagh Park' with borehole investigations There is very scant information on this in the application.	The Applicant further noted the proposed wind farm boundary has not been changed and encompasses the two rectangular areas which were the subject of Foreshore Licences in 2000 and Foreshore Lease applications in 2006. The proposed wind farm boundary is co-incident with the geotechnical survey boundary as shown in Drawing 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east. The Applicant also noted that information to aid the Minister's assessment of the potential for effects of the proposed works to arise, in-combination with other plans and projects is provided in Section 4.3 of the Natura Impact Statement included in the application documentation (Annex F) which concluded that that there are no adverse effects upon the European Site's integrity as a result of the in combination proposed works.

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Cable Link Site Shanganagh area Shankill? The proposal for a site north of Bray seems to have been dropped though this was the preferred and only proposed landfall site indicated for many years of this process. **Increased overall Area of the Dublin Array Windfarm Survey applications**. It has been noted that the overall area has expanded with successive licence and lease applications in the past 20 years and is now very large and hugs the shoreline at Poolbeg, Shellybanks and Hackettsland, 'Shanganagh' Killiney and also 'Shanganagh' Shankill. This comes at the same time as other windfarm applications impacting on the same areas and will add to the cumulative environmental pressures.	
Submission 16 On behalf of Coastwatch NGO Coastwatch NGO submitted the following comment in relation to the foreshore licence application: Re Proposed Landfall Cable Link Sites. (1) Poolbeg Shellybanks. Coastwatch NGO have a particular concern about the Arctic Ciprina site that was near Poolbeg along with the 'Donnax' species. Coastwatchers with an in-depth knowledge of seagrass beds in Dublin Bay have not identified the presence of Zostera Noltii at Shellybanks to date but conducted extra verification checks after reading the application, to identify the exact location intended with no success. Coastwatch NGO stated that the Shellybanks shoreline has a rich variety of benthic species (as indicated by the name) so a simple initial 'field' assessment of the actual shells on the shoreline would help provide further information on which species are now present. Coastwatch NGO state that further data on shore life is necessary. Drift line vegetation and incipient marram dunes are identified in the application but detail on further biota is lacking. Coastwatch NGO noted that species need to be identified. In addition they suggest that the exact location of the Drift Lines and Marram referenced would be helpful.	**Re Proposed Landfall Cable Link Sites.** (1) Poolbeg Shellybanks. The Applicant notes that due to the variability in the exact location and extent of habitat features, the Applicant has committed to appointing an experienced, qualified ecologist to supervise the works within the intertidal areas. The ecologist will undertake a pre-commencement walk-over survey to identify any sensitive habitats, such as Zostera noltii, marram grass and annual vegetation drift lines, and to advise the Applicant on any potential access points to the intertidal area for plant and machinery which would avoid any such sensitive habitats. Reinstatement of the intertidal habitat will be carried out to pre-survey conditions. Pre application consultation with NPWS confirmed the appropriateness of mitigation measures proposed. The Applicant noted the nearshore boreholes will have a maximum sample diameter of 10 cms and will be drilled to a maximum depth of 45m. The subtidal boreholes will be drilled to a maximum depth of 80m. Borehole samples will be removed from within the drill string for detailed offsite analysis. A small amount of spoil, comprising bentonite and drill cuttings, may be generated from the process. Bentonite is a non-toxic, inert, natural clay mineral that can be diluted with water and is used extensively in the marine environment. The drill string is operated within a riser casing which will contain the drilling spoil/cuttings which will be retained and returned to deck. In accordance with standard practice this material will be returned to the

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While intertidal shoreline investigations may take place for one or two weeks per annum for up to five years a question of seasonality is raised by Coastwatch NGO. They note that spring may reveal different results from a survey in the autumn; and that there could be a similar variation in regard to sub tidal benthic surveys especially if there is a water pollution incident. Coastwatch NGO stated that any ecologist appointed to direct machinery away from sensitive areas needs to have had previous 'on site' experience and training, with further checks by the appropriate authority. Re Boreholes Coastwatch NGO mentioned that if boreholes for a potential cable corridor at this location run up to 80 metres deep there might there be a danger of activating toxic matter long settled on the seafloor? Coastwatch NGO state that aged material from the former dump and reclaimed land is shedding through the rock armour in some places and this needs to be assessed. Suspended sediment may deter the foraging of wading birds. Any risk of toxins should be discussed. Coastwatch NGO suggesedt that a repeat process of 'benthic grabs' may bring repeated damage to a site. Amenity aspects at this site. Coastwatch NGO say that this is alongside an increasingly popular walking route and not far from the busy Half Moon Bathing Place. Coastwatch NGO suggest that public access issues need to be taken into careful consideration. (2) Cable Link at south Killiney Bay: Killiney, Hackettsland, Shanganagh and Shankill. Coastwatch NGO noted that the survey area had been extended along the shoreline with this application. Coastwatch NGO noted that estuaries of the Shanganagh River and Deangrange which flow into the sea via lagoons and meandering intertidal channels have not been mentioned at all. They note that both rivers require regular dredging to keep the river mouths free of sand and silt to avoid potential back flow in times of flooding especially at high tide and when there is a driving east wind.	seabed and allowed to disperse naturally. Spoil from borehole locations towards the top of the beach will be recovered and removed offsite for disposal. The Applicant noted that access to the beach at Poolbeg will be agreed with Dublin City Council, similarly access arrangements at Shanganagh will be agreed with Dun Laoghaire Rathdown County Council prior to commencement of the works. Small areas of the beach around the geotechnical sampling locations will be closed to the public for safety reasons during the works, the Applicant has committed to reducing the extent and duration of these closed areas as far as practicable. There will be no restrictions on access to specific amenity locations, such as the Half Moon Bathing Place. (2) Cable Link at south Killiney Bay: Killiney, Hackettsland, Shanganagh and Shankill. The Applicant noted the proposed wind farm boundary has not been changed and encompasses the two rectangular areas which were the subject of Foreshore Licences in 2000. The proposed wind farm boundary is co-incident with the geotechnical survey boundary as shown in Drawing 3 of Annex B to the application documents. In accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects and therefore the Foreshore Licence area extends beyond the proposed development area to the north, south and east. Physical disturbance of seabed habitat arising from the proposed geotechnical sampling locations, on the south side of the Shanganagh Waste Water Treatment Plant, will affect a very small area and any effects will be highly localised. No impact to water quality within the Shanganagh River, which enters the sea approximately 0.25km to the north if the proposed works are anticipated, nor the Deansgrange River.

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Coastwatch NGO suggested that the latest Flood Risk maps for this area were added to an appendix of the DLR Draft Development Plan and need to be viewed. This zone is now a high Coastal Flooding risk in addition to the pluvial and alluvial flooding which have been a feature of the rivers for over a decade (see CFRAM reports) In summer 2021 a contractor was conducting test bore holes to check the ground water and soakage levels in the adjacent field which is a flood plain. Generally they hit boulder clay as hard as bedrock in the hinterland 'field area' only a few metres down. There was a suggestion that an extra drainage pipe might be required in the area. Coastwatch NGO noted that the Shanganagh River was a high quality salmonid river fifty years ago and still provides a channel for sea trout and sometimes eel using the river wetland corridor which continues to Loughlinstown Commons pNHA and streams further beyond again. The lagoon on the seashore has fish and the shoreline is popular with anglers. Coastwatch NGO noted that the Deansgrange River, now in a narrow culvert, is prone to flash flooding and flows onto the shore via a deep channel that attracts wildlife. Coastwatch NGO noted that water quality in both rivers dipped in summer 2021 and there was a phase of probable algal bloom and high siltation in the lower tidal area so baseline assessments in Summer 2021 may have had reduced data results. Erosion Threats. Coastwatch NGO noted that the soft glacial cliff at the cable link site (and towards Shankill) has shown accelerated rates of erosion in the past five years. Infrastructure Coastwatch NGO stated that the Bray Shanganagh Waste Water Plant on the clifftop is due for expansion in this decade with the addition of an extra tank with the increased populations in the new Cherrywood Town to the west. Coastwatch NGO suggesedt that serious discussion with Irish Water is urgent now. When the original Kish licence was granted over twenty years ago the modern WWTP for the area had not been designed, built or in operation. The long seafall outpipe is referenced along with the short storm overflow pipe. Coastwatch NGO state that concerns have been raised in regard to the proximity	The Applicant noted there is no possible pathway between the non-intrusive geophysical surveys conducted in the area in 2021 and shoreline biota. There was no disturbance to the seabed nor mobilisation of seabed sediments. Shallow benthic grab samples (0.1m2) were undertaken as part of the 2021 survey the closest subtidal sampling locations was located approximately 3km offshore, given the distance from shore and the very limited area of seabed disturbance no effect on shoreline habitat is likely to have occurred. The Applicant highlighted that the potential landfall locations along this stretch of coast have been selected with consideration of flood risk and rates of coastal erosion. The proposed surveys which are the subject of this licence application will not hinder the river channels and have no implication for flood risk nor increased rates of erosion. The Applicant noted that the application documents include an EIA Screening and Environmental Report (Annex C). The assessment approach follows the source-pathway-receptor model to identify the possible effects arising from the works, the route by which these effects may be experienced by receptors. Environmental Appraisal is presented in Section 4, which considers amongst other topics, potential effects upon fish and shellfish species which may experience effects from the proposed works, i.e. where all the elements of the source-pathway-receptor principle are in place. Annex C concludes that the nature, scale and location of the proposed site investigation and monitoring is such that there are no foreseeable significant effects on the environment arising from the activities. **Erosion Threats.** The Applicant noted that the potential landfall locations along this stretch of coast have been selected with consideration of rates of coastal erosion. The proposed surveys which are the subject of this Foreshore Licence application will not affect rates of erosion. Infrastructure The Applicant noted that the proposed site investigations which are the subject of this licence application will have no impact upon the infrastructure in the vicinity, all sampling locations will be positioned

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of an electric cables in an area of possible sewage gas leakage due to risk of explosion. Coastwatch NGO noted the proposed cable link site through the eroding glacial cliffs will be in a tight space adjacent to the Shanganagh River mouth and WWTP major outfall pipe. Historic Infrastructure. Coastwatch NGO identified the following historic infrastructure in the surrounding onland area of the foreshore licence application: The busy 'raised walkway' is the early railway embankment. Bridges: The old stone railway bridge at the Shanganagh Estuary is one of the earliest in Europe. The wooden/steel bridge over the Deansgrange River (circa 1990) opened up a continuous right of way from Shankill to Killiney. Early 19th century built structure features the crumbling clifftop 'Battery' and a still intact Martello Tower. The site of the Tower is probably a site of early human settlement. Future Infrastructure may include an electricity substation for Codling Windfarm on the upper shore close to the Martello Tower as they are also surveying this section of the coast. Amenity Area Coastwatch NGO noted that there is high use of the narrow coastal paths by people of all ages and abilities (from near and far) along an increase in bathing and water activities. DLR have plans for a coastal cycling route from Killiney to Shankill which will increase path use and bring more visitors to the shore area. For some local residents it is the main accessible daily exercise area near their home. The clifftop area has busy playing fields as well as a community muga pitch and allotment gardens. Biodiversity. While some of the lower shore and geogenic reef biota have been listed the Coastwatch NGO believes this is not a full assessment. They note that there are probably gaps in the fish life data on the reef and also the variety of algae present though sometimes this can be masked by eutrophic green algae which is present in many parts of the bay due to lags in water quality.	so as to avoid any impact on these features. The Applicant has been in consultation with Irish Water and will continue to consult with them as the design of the offshore wind farm and associated cable routes develop. The Applicant stated that a thorough search of all planning applications which have been submitted but not yet determined or which have been granted but not yet constructed will be undertaken prior to completing an assessment of potential impacts of the proposed project cumulatively with other plans and projects. The cumulative effects assessment will be presented in the Environmental Impact Assessment Report for the proposed wind farm which will be submitted in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. **Historic Infrastructure.** The Applicant noted the proposed site investigations which are the subject of this licence application will have no impact upon the infrastructure in the vicinity, all sampling locations will be positioned so as to avoid any impact on these features. A Marine Archaeology Assessment, Annex D of the application documents includes an extensive description of both the maritime and coastal archaeological features. The Applicant stated that a thorough search of all planning applications which have been submitted but not yet determined or which have been granted but not yet constructed will be undertaken prior to completing an assessment of potential impacts of the proposed project cumulatively with other plans and projects. The cumulative effects assessment will be presented in the EIAR for the proposed wind farm which will be submitted in due course as part of the development consent application under the Maritime Area Planning Act, 2021 and its associated consent framework. **Amenity Area**

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The integrated eco systems of the area demonstrate a good variety of fauna and flora including Drift Line Vegetation and Fringe Vegetation. Coastwatch NGO stated that there was not mention of the birdlife in the lagoons or on the geogenic reef or the sandmartin colonies in the soft cliff close to the site and further along the shore towards Shankill. Coastwatch NGO noted that the precautionary principle has to be applied. Any plans for cable links at this location need to be carefully 'ground truthed' as there are many overlapping factors to take into account in a tight space, with both a railway line and intensive residential housing in the hinterland. (3) Other cable link landfall sites indicated in previous licence applications by Dublin Array. While this application references a possible second cable landfall route somewhere near 'Shanganagh Park' the exact location is not clear to Coastwatch NGO and it suggested that there is no further detail apart from the borehole indicators on a map. Coastwatch NGO noted that the original proposal for the cable link at Shanganagh North of Bray, Shankill seems to have been dropped in this application as the focus is now on Shanganagh Killiney further south. The name 'Shanganagh' has caused a lot of confusion for the public on these applications as it can cover a large area. It needs to be clearly defined with a user friendly map reference. (This matter was raised directly with Dublin Array in 2020 in the hope of improving the public information) The rocky area off the coast at Shanganagh Park shoreline access point is favoured by seals and lower shore biota and should be carefully assessed in advance of incursions by windfarm surveyors at any stage. Although the beach area north of Bray does not appear to be covered in this application Coastwatch NGO asked to note the presence of the submerged 6000 year old forest (Praeger) Increase in the Survey Area in this application. Coastwatch NGO noted the survey area is now vast and seems to have increased with licences and leases for the Kish Bank windfarm proposal since the first applications over 20 years ago. They note that prolonged surveys with seabed	The Applicant stated that the site investigations which are the subject of this application will have no impact upon the amenity areas on the clifftop. Access to the beach at Shanganagh will be agreed with Dun Laoghaire Rathdown County Council prior to commencement of the works, similarly access to the Poolbeg intertidal will be agreed with Dublin City Council. **Biodiversity.** The Applicant noted that the application documents include an EIA Screening and Environmental Report (Annex C), Report to Inform Appropriate Assessment Screening (Annex E) and Applicant's NIS (Annex F). The assessment approach follows the source-pathway-receptor model to identify the possible effects arising from the works, the route by which these effects may be experienced by receptors. Environmental Appraisal is presented in Section 4, of Annex C, which considers amongst other topics, potential effects upon benthic subtidal and intertidal habitats, fish and shellfish, birds and marine mammals which may experience effects from the proposed works, i.e. where all the elements of the source-pathway-receptor model are in place. Annex C concludes that the nature, scale and location of the proposed site investigation and monitoring is such that there are no foreseeable significant effects on the environment arising from the activities. The Applicant stated that Annexes E and F are primarily focussed on receptors which are qualifying interests of a Natura 2000 Sites and cetaceans which are listed under Annex IV of the Habitats Directive. The Applicant noted that the cumulative effects assessment of the proposed wind farm infrastructure with other plans and projects will be presented in the EIAR for the proposed wind farm which will be submitted as part of a development consent application in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. (3) Other cable link landfall sites indicated in previous licence applications by Dublin Array.

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testing, gives is an added pressure to the marine environment and allows little time for 'recovery'. The Coastwatch NGO stated that seabed works are reported to cause increased in suspended sediment. If the total area requested in this application is approved extra resources will be required for the state to efficiently monitor it and ensure that the process continues to maintain the standard of agreed investigation methodologies. Coastwatch NGO is concerned about assessing the patterns and pathways of migratory birds (especially geese and terns) fish and mammals as these can vary so much especially with impacts of Climate Change and storms. Coastwatch NGO suggested that on-going consultation with the appropriate state authorities and agencies, Birdwatch Ireland and the Whale and Dolphin Group for the most recent data is essential and will remain a challenge throughout the five years of this licence. Porpoise and cetaceans are at high risk even with the precautions described; and methodology needs to be fully assessed and reviewed during the process with regular policing by the authorities.	The Applicant noted that the application is for permission to undertake site investigation and monitoring only. The planning stage design of the project has not been completed and will in due course be the subject of a development consent application under the Maritime Area Planning Act, 2021 and its associated consent framework. The observations included within this submission will be considered as part of the planning stage design preparation process. Clear mapping has been provided as part of the foreshore licence application documentation to enable members of the public identify the specific location of the proposed investigation and survey locations. The Applicant referred to the Marine Archaeology Assessment, Annex D of the application to document the presence of the submerged forest has been recorded within the proposed survey area, near Bray Harbour, Co. Wicklow (paragraph 3.3.7 and Figure 3) and appropriate mitigation has been included in the development of the survey plans. The Applicant noted that the development consent application for the proposed offshore wind farm to be made in due course under the Maritime Area Planning Act 2021 will be accompanied by an Environmental Impact Assessment Report which will include an assessment of the potential impact that the proposal may have on a range of receptors including seascape, marine mammals, birds, navigation and the physical environment. **Increase in the Survey Area in this application.** The Applicant noted that a number of surveys have been undertaken historically in the vicinity of the Kish and Bray Banks in accordance with foreshore licences granted in 2000 and 2021. Over this extended period of time natural features such as seabed bathymetry can change and it is important from an engineering design and environmental assessment perspective that up to date information is obtained concerning not only the current condition but also the rate and nature of any change The data collected to date is being used to inform preliminary design and environmental assessment. The site investigations (geophysical and geotechnical) which are proposed under the current foreshore licence application will be focussed on proposed foundation locations, inter-array, and export cable routes to

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	the selected landfall location(s) which are being refined in the course of the iterative design and assessment process. The proposed development boundary of the wind farm has not changed. It should be clearly noted that suggestions that site preparation works are planned to be undertaken are completely inaccurate and a misrepresentation of the survey methods which are the subject matter of the application. The Applicant stated that in accordance with good practice ecological monitoring, including mobile surveys and deployment of static acoustic monitoring devices is proposed within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects. For this reason only the Foreshore Licence area has been increased. The Applicant stated that the information presented in the suite of application documents, specifically, Annex C, EIA Screening and Environmental Report, Annex E Report to Inform Appropriate Assessment Screening and Annex F Natura Impact Statement, identifies the relevant impact pathways and receptors which require assessment for potential effects of the proposed site investigations and monitoring activities which are the subject of this application.
Submission 17 Coastal Concern Alliance Coastal Concern Alliance (CCA) objected to the granting of a further investigative licence (Licence Application FS007188) for proposed development of a wind farm on the Kish and Bray Banks and made the following comments: The Foreshore Act 1933 Since 2006, CCA have campaigned for reform of The Foreshore Act 1933, the legislation under which this Foreshore Licence application is being submitted. Universally accepted as outdated and not fit- for-purpose, this legislation is currently under reform and due to go to report stage in the Seanad this week. Given that the update of the legislation is imminent, the continued processing of applications for foreshore licences under the old legislation is not in the public interest. **History of the current proposed development.**	**The Foreshore Act 1933** The Applicant stated that the foreshore licence application process is not a matter for it and the application has been prepared and submitted in accordance with the requirements of the Department of Housing, Local Government and Heritage. However, the Applicant noted that section 175 of the Marine Area Planning Act 2021, recently adopted by the Oireachtas, expressly makes provision for applications for foreshore licences under the 1933 Act to continue to be made to DHLGH until such time as the new Maritime Area Regulatory Authority is established under the 2021 Act. The Applicant noted the subject matter of this licence application is for ecological surveys and site investigation works only. The proposed wind farm development will be the subject of a future development consent application under the Maritime Area Planning Act, 2021 and its associated consent framework.

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Foreshore Licences 2000 The history of the proposed development as described in the current application states that two Foreshore Licences were awarded to Kish Consortium in August 2000. These Licences, one relating to the Kish Bank (copy attached) and a second relating to the Bray Bank, were to remain in force for a period of four years from 2nd April 2001. At that time, the regulations governing the awarding of Foreshore Licences and Foreshore Leases were detailed in a document entitled 'Offshore Electricity Generating Stations. Notes for Intending Developers' (Copy attached) The document stated 'Foreshore Licences should, ordinarily, be valid for four (4) years and not normally be subject to extension.' (underline added) In cases of force majeure, 'the Minister may at his sole discretion and subject to any additional or differing conditions as he may think appropriate, extend the period of validity of the Licence for one or more periods, each of which shall not exceed twelve months, subject to an application being made not less than two months and not more than three months prior to the expiry of the Licence or any extension to the licence period.' It is also of note that, under the terms of the Foreshore Act 1933 and allowing for whatever leeway this inadequate legislative framework provided, the Minister was, nonetheless, charged with making decisions 'in the public interest'. Notes for Intending Developers gave details of the payment scheme that pertained in relation to the granting of these 2000 Foreshore Licences. A nominal rent of €5 per annum was levied, subject to a deposit of €100,000. This deposit was refundable on condition that a valid Foreshore Lease application was made within a year of the date of expiry of the Foreshore Licence. Clauses reflecting these conditions were included in each of the two Foreshore Licences awarded to Kish Consortium in 2000. The licences stated 'On completion of a satisfactory exploration programme carried out in accordance with the terms and conditions of this Licence the Minister shall refund the sum deposited, together with any interest accrued, less any direct costs incurred in setting up and closing the account, subject to a valid application (as defined in the document "Note for Intending Developers") being made to the Minister, within twelve months of the expiry of this Licence, for a	With regards to the additional site information included, the Applicant noted that the current Foreshore Licence area is larger than the two adjoining Licences awarded in 2000 as it includes corridors in which export cables may potentially be routed and an area surrounding the proposed wind farm boundary for the purpose of ecological monitoring is proposed. In accordance with good practice, mobile ecological surveys and deployment of static acoustic monitoring devices is proposed not only within the proposed wind farm development boundary but also within the surrounding area to enable monitoring for potential far field effects. **Remedial Obligation** The Applicant noted that this application is for ecological monitoring and site investigation works required to inform the engineering and design of a proposed offshore wind farm, the potential cable route(s) to shore and associated infrastructure. Alternatives considered as part of the development will be included in the environmental impact assessment report which will accompany the development consent application intended to be submitted in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. **Site selection** The Applicant noted that this application is for ecological monitoring and site investigation works required to inform the engineering and design of a proposed offshore wind farm, the potential cable route(s) to shore and associated infrastructure. Alternatives considered as part of the development consent will be included in the environmental impact assessment report which will accompany the development consent application intended to be submitted in due course under the Maritime Area Planning Act, 2021 and its associated consent framework. With regards to careful selection of sites, the Applicant noted that this application is for ecological monitoring and site investigation works required to inform the engineering and design of a proposed offshore

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Foreshore Lease to allow the construction and operation of an electricity generating station within the Licence area,…' The alternative was that the Licensee proved to the Minister that the area that was the subject of the Foreshore Licence would be unsuitable for the construction and operation of an offshore electricity generating station. Given that these two Foreshore Licences were granted in 2000 and that they expired in 2005, that no valid Foreshore Lease application was made or accepted by the Department in 2006, they do not appear to be in any way relevant to the current Foreshore Licence application. Foreshore Lease applications 2006 The current Foreshore Licence application states 'In January 2006, Kish Offshore Wind Limited and Bray Offshore Wind Limited submitted two Foreshore Lease applications (FS006462 and FS00643) to the Department of Communications, Marine and Natural Resources, pursuant to Section 2 of the Foreshore Act 1933, as amended, for proposed wind farm development in the vicinity of the Kish and Bray Banks. CCA understands that some information was submitted to the Department of Communications, Marine and Natural Resources in 2006 although this information is not in the public domain. However, in response to the documentation that was submitted, the Marine Licence Vetting Committee (MLVC), were unable to make a determination on the lease applications. The MLVC Report (Copy attached) stated 'On the basis of its considerations the MLVC is of the opinion that the EIS does not meet statutory requirements and is deficient in its content, presentation and consideration of some key aspects. The MLVC is, therefore, at this time, unable, to make a recommendation to the Minister on this project proposal.' The MLVC Report gives additional details to support this decision. Of note is their comment under the heading Alternatives, which states 'No information on alternative sites was provided and the justification for the selected site was poorly described. In addition, no justification for the selected turbine layout was	wind farm, the potential cable route(s) to shore and associated infrastructure. The Applicant referenced the Maritime Area Planning Act 2021 recently adopted by the Oireachtas making provision for the continued processing of licence applications under the 1933 Act pending the establishment of MARA in 2023. The application for a Foreshore Licence will be evaluated by the Minister in accordance with EU law, including (where considered necessary) an independent scientific evaluation of the likely significant effects of the proposed site investigations and surveys on European sites. The Minister is precluded by Article 6(3) of the Habitats Directive from granting any licence which could have adverse impacts on the integrity of a European site, whether individually or in combination with other plans or projects. **National Marine Planning Framework 2021 & site selection** The Applicant noted this application is for ecological monitoring and site investigation works required to inform the engineering and design of a proposed offshore wind farm, the potential cable route(s) to shore and associated infrastructure. All necessary assessments required to determine this application shall be carried out by or on behalf of the Minister in accordance with applicable EU and Irish law. Appropriate Assessment of potential impacts on protected habitats and species. The approach and methodology to screening and preparation of the Natura Impact Statement (NIS) included within the application documentation is consistent with relevant Irish and EU guidance (Section 2.2 of the Report to Inform Appropriate Assessment Screening, Annex E) and ensures compliance with the Habitats and Birds Directives and transparency of both the process and findings. The method draws upon guidance produced by Department of Environment, Heritage and Local Government (2009) and Office of the Planning Regulator (2021) and the European Commission Guidance on the Methodological Approach to the assessment of plans

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provided.' In their conclusion, the MLVC Report stated that they were not satisfied that the EIS complied with relevant EU and National EIA legislative requirements. Clearly information relating to these 2006 Foreshore Lease applications is included in the current application documentation to suggest that it somehow validates the current Foreshore Licence application. Far from doing that, it confirms that in 2006, the then MLVC considered that the environmental information provided did not meet the requirements of the Environmental Impact Assessment Directive, because, inter alia, it failed to consider alternative sites. In summary, these 2006 Foreshore Lease applications and supporting documentation were deemed to not meet statutory requirements, were not published on the Department's web site and were never subject to statutory public consultation. They have no validity as information on which it is sought to ground the current Foreshore Licence application. **Other investigation related to Dublin Array proposed development.** 2009. Although not mentioned in the current Licence application, lease application documents are available on the Department's web site stamped Received 2nd June 2009, but dated (not signed) 21 Dec 2005. Among other points of note in these application documents, is the fact that required Planning Permission for shore-based works has not been obtained, a clear indication of project splitting. In 2013, Dublin Array carried out a major public consultation. Again, this is not referenced in the current licence application. The letter, dated 18th April 2013, sent to CCA announcing the consultation stated 'Written submissions in relation to the effects on the environment of the proposed development may be made to The Department of the Environment, Community and Local Government, Marine Planning and Foreshore, Newtown Road, Wexford, Co Wexford quoting reference number MS53/55/L1. Numerous citizens took the time and trouble to respond to this including Coastal Concern Alliance, who commissioned a professional assessment of visual impacts to help to inform members. All submissions were uploaded and made available on the Department's web site. (Copy available) However, when CCA wrote to the Department in 2018 seeking clarification on the status of these submissions and	and projects under Article 6(3) and 6(4) of the Habitats Directive (EC, 2021). Mitigation measures were not taken into account at the screening assessment stage consistent with Article 6(3) as interpreted by the Court of Justice of the EU. Mitigation (avoidance and protective measures) are properly presented and applied in the NIS (Annex F). Section 4.2 of the NIS presents the results of the assessment of potential significant effects which have been screened in for appropriate assessment, without consideration of mitigation. Section 4 presents the mitigation measures which RWE are committed to implementing which will be a condition of the grant of any Foreshore Licence. Section 4 further describes the predicted effects of the proposed surveys and site investigations on European sites with the proposed mitigation in place. Based on the assessment of the proposed surveys and site investigations, both alone and in-combination with other projects and plans, with mitigation measures in place, it is concluded that no adverse effects on the integrity of the European sites concerned will arise, in view of the site's Conservation Objectives. The Applicant referred to recently published European Commission Guidance2, C(2021) 6913 final Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC confirms the importance of applying mitigation measures, where necessary, to ensure the conservation of protected animal and plant species and habitat types. The Applicant noted the assessment of impacts arising from biological sampling incorporates the precautionary principle and has been undertaken on the assumption that samples could be taken from any location within the Foreshore Licence boundary with the greatest potential to impact on Natura 2000 sites. The Applicant stated that sampling locations will be confirmed following review of the

[2] https://ec.europa.eu/environment/nature/natura2000/management/pdf/methodological-guidance_2021-10/EN.pdf

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were told that they had no status, because they were made in response to the developer's public consultation. The Department, funded by taxpayers, were clearly involved in this consultation, accepted and collated submissions on behalf of the developer and uploaded these to their web site. The collusion evident here makes it almost for citizens to avail of the Fair, Equitable and Timely access to information and access to justice that is required under the Aarhus Convention. This is illustrative of the impossible burden of responsibility placed on citizens, who should be able to rely on the expertise of government to advocate on behalf of citizens and in support of a democratic foreshore planning process. However, it seems to be the case that government allies itself with the interests of private multi-national energy companies and facilitates their efforts to take advantage of lax regulation and outdated legislation to exploit our near-shore coastal waters for massive industrial development, for which they would not be granted consent in their own countries. CCA contend that this is in breach of the Foreshore Act 1933, which requires the Minister to make decisions 'in the public interest' and disrespectful of the rights of citizens. Foreshore Licence granted, January 2021 In detailing the history, the current Foreshore Licence application then references the Foreshore Licence granted to Innogy Renewables Ireland Ltd in 2021. This Foreshore Licence is currently the subject of a challenge by way of Judicial Review. **Additional site information.** Together with the information provided above which demonstrates clearly that historic applications relating to the Kish and Bray Banks have no valid connection with the current Foreshore Licence application, it should be noted that the Foreshore areas referenced in documentation at various times were as follows: 2000: 4000 hectares 2009: 4000 hectares 2013: 5400 hectares 2019: 25,440 hectares 2021: 112,986.34 hectares	geophysical data of the area which will be analysed to identify ground types and seabed features and to refine the selection of grab locations and to ground truth the data and provide material for biological sampling. This approach provides a robust and informed sampling array in line with relevant guidance and best practice for surveys intended to avoid targeting sensitive habitats, the location and extent of which are dynamic. This does not mean that RWE will be at large in determining where, or how many, or what type of samples may be taken within the scope of the Foreshore Licence. That will be defined by the terms of the Licence and within the parameters of the assessment already undertaken in accordance with Article 6(3) prior to the grant of the licence. With respect to the potential impact on species the subject of the Article 12 Assessment, the Applicant stated there is no preclusion on incorporating consideration of mitigation measures, such as compliance with NPWS Guidance, in the Article 12 assessment procedure. The Applicant referenced Annex E of the application documents to present a Screening Assessment of all SACs and SPAs within the potential zone of influence of the site investigation and monitoring activities which are the subject of this Foreshore Licence application. A number of SACs and SPAs are screened in for assessment and this is presented in the Natura Impact Statement, Annex F, included in the application documents. The SACs and SPAs within which benthic sampling is proposed are screened in for appropriate assessment. The Natura Impact Statement concludes that there is no potential for adverse effects on the qualifying interests of any European site. The EIA Screening and Environmental Report, Annex C considers whether, firstly, the activities proposed under this Foreshore Licence constitute a project type listed in either Annex I or II of the EIA Directive, and secondly whether the activities would be likely to have significant environmental effects. This report includes consideration of effects on benthic ecology both within and outside European site, including the Annex I sandbank habitat. The latter is not considered

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Clearly, the area of the foreshore included in the licences awarded in 2000 bears no relationship to the area of the foreshore included in the current Foreshore Licence application. **Remedial Obligation** It is evident that previous consents granted for any application associated with the proposed development had not been carried out in compliance with the requirements of European Environmental law and, in particular, the requirements of the Bird's Directive, the Habitats Directive and the EIA Directive. In circumstances where those consents were granted in non-compliance with these directives there is an express remedial obligation on the Minister in his consideration of the within application to ensure that the appropriate environmental assessments are carried out in connection with the previous consent in addition to the proposed application for development. Given the chaotic processes that characterise the history of this proposed development, the consents sought, the applications rejected due to failures to comply with EIA Directive, Aarhus Convention etc. it is imperative that all of these historical issues are addressed and the required remedial obligation applied. **Consideration of alternatives, 2021.** The current Foreshore Licence application fails to consider alternatives. While twenty years ago it was not possible to site wind turbines in deeper waters, to install the giant turbines that are in production now or to deploy floating wind, these options are all now available and being used around the world. In Ireland, applications for major floating wind developments are in the pipeline with significant advances in the most environmentally friendly platforms publicised recently. Alongside this there has been an explosion in our knowledge and understanding of the importance of the marine environment and its value to life on planet Earth. Biodiversity and species loss, together with climate concerns are at the forefront of public awareness. While the Irish government appears to be wedded to the idea of massive near-shore wind development, commitment to protection of the marine environment has been utterly neglected, with just 2% of our seas being afforded	directly within Annex E or Annex F as the feature is not designated as a qualifying interest of an SAC within the zone of influence. The habitat type 'sandbanks slightly covered by seawater all the time' is not considered sensitive to benthic survey grabs which result in small and temporary disturbance to sediment which will return to normal equilibrium very quickly. The Applicant noted this application is for ecological monitoring and site investigation works required to inform the engineering and design of the offshore wind farm, the cable route to shore and associated infrastructure. The Applicant noted that NPWS, 2020, The Monitoring of six EU Habitats Directive Annex 1 Marine Habitats identifies the potential for impacts to Annex I sandbanks from wind energy infrastructure. Whether or not an individual project will have significant effects on these features is dependent upon a number of factors, including among others the extent and condition of the habitat and design of the wind farm. A development consent application for the proposed windfarm, which will be submitted under the consent framework established under the Maritime Area Planning Act, 2021, will include assessments of the potential effects of the offshore wind farm, including the potential impacts on Annex I sandbanks. The application will also include reports to inform the competent authorities Appropriate Assessment Screening and Appropriate Assessment. The potential for impacts on mobile species, such as terns, which may be connected with a European Site for which that species is a qualifying interest will be assessed and the results presented. It will then be for the competent authority to determine the application in accordance with EU and Irish law. The Applicant referenced Annex E of the application documents to present a Screening Assessment of all SACs and SPAs within the potential zone of influence of the site investigation and monitoring activities which are the subject of this Foreshore Licence application. A number of SACs and SPAs are screened in for assessment and this is presented in the Natura Impact Statement, Annex F, included in the application documents. The SACs and SPAs within which benthic

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even the most minimal protection. At the World Conservation Congress (September 2021), the International Union for the Conservation of Nature approved a motion to protect 30% of the planet by 2030. The resolution calls on IUCN members, including Ireland, to support: recognition of "the evolving science, the majority of which supports protecting, conserving and restoring at least half or more of the planet is likely necessary to reverse biodiversity loss, address climate change and as a foundation for sustainably managing the whole planet." "at a minimum, a target of effectively and equitably protecting and conserving at least 30% of terrestrial areas and of inland waters … and of coastal and marine areas, respectively, with a focus on sites of particular importance for biodiversity, in well-connected systems of protected areas and other effective area-based conservation measures (OECMs) by 2030 in the post-2020 global biodiversity framework." … To honour this commitment, the Irish government must acknowledge the direct conflict between extensive uncontrolled near shore energy development on vulnerable habitat, as is proposed in the current application, and their responsibility to Irish citizens and the international community to urgently put in place measures to ensure the conservation and restoration of the planet's biodiversity 'to address climate change and as a foundation for sustainably managing the whole planet'. Consideration of alternatives is key to getting the balance right. **Site selection** The siting of offshore renewable energy installations has been a key concern of CCA since our formation in 2006. We have repeatedly expressed serious reservations about the manner in which Government has continued to process licence and lease applications in Ireland's near-shore area on sites selected by developers on 'a first come first served' basis. The current Foreshore Licence application is a case in point. The government's acceptance of this application for extensive investigations on a sensitive site selected by the developer without any State resource and constraints analysis is totally out of line with current good international practice. The vast majority of other EU countries exercise strict control over the locations of offshore wind farms. Governments select potential zones for offshore wind	sampling is proposed are screened in for assessment. The Natura Impact Statement concludes that there is no potential for adverse effects on the qualifying interests of any European site. The Applicant referred to Section 7.4 of the Report to Inform Appropriate Assessment, to highlight that a search of publicly available information was undertaken to identify other plans and projects which may result in adverse effects on the integrity of any Natura 2000 sites in combination with the site investigation and monitoring activities proposed under this Licence application. Sources included DHLGH Foreshore Licence database and the EPA Dumping at Sea Register. The Applicant noted the search was undertaken for all projects within a 30 km radius of the Foreshore Licence application area. Given the localised and temporary nature of the survey works this was considered precautionary. The projects considered include those submitted but not yet determined and existing licences which have been granted but the associated activities not yet completed. The Applicant noted that they completed a successful geophysical and benthic survey campaign between February and May 2021 under Foreshore Licence FS007029. Having completed the geophysical survey fieldwork it has been determined that, due to the limited scope and geographical extent of the geotechnical investigations authorised by the licence, and the need for a more comprehensive geotechnical investigation to inform the detailed design and assessment of the project, a more comprehensive geotechnical investigation is warranted. The revised scope is included within this foreshore licence application. The Applicant noted that further geophysical surveys focussed on narrow corridors of proposed turbine foundation locations, inter-array, and export cable routes to the selected landfall location(s) will provide detail on the rate and nature of any change in bathymetry. A series of surveys of these types are typical of the development of marine projects and are part of an iterative design and assessment process. The Applicant noted that two metocean buoys and a FLiDaR have also been deployed in accordance with Foreshore Licence FS007029,

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adopting an ecosystem approach and consulting widely with stakeholders. They then open these zones to developers who must submit detailed EIAs for their proposed developments. The UK Government, for example, has controlled offshore wind development via various Leasing Rounds with government carefully selecting sites before offering them for potential development. **National Marine Planning Framework 2021 & site selection** Ireland's National Marine Planning Framework (NMPF) was adopted in 2021. The Strategic Environmental Assessment Environmental Report, (SEA ER) carried out to assess the environmental impacts of the draft Plan highlighted the need for a 'robust site selection process to inform the best technical and environmental locations for any given prioritised activity'. This applied to all potential uses of the marine environment. However, more specific points were made in the discussion of Offshore Renewable Energy. The SEA ER stated 'There is potential for negative impacts for all environmental receptors where ORE infrastructure has not had the benefit of a robust site selection process which explicitly includes consideration of benthic habitats, marine mammals, birds and visual receptors as a minimum'. A report from the International Union for the Conservation of Nature (2021), Mitigating Biodiversity Impacts associated with Wind and Solar energy developments, confirms that site selection at the early planning stage is the most important consideration in optimising avoidance of biodiversity impacts. It is essential to understand that this requirement does NOT arise as a result of the drafting of Ireland's NMPF. It is a requirement laid down in the Environmental Impact Assessment Directive (Directive 85/337/EEC, as amended), which was transposed into Irish law by the European Communities (Environmental Impact Assessment Regulations), 1989 (S.I. No. 349 of 1989), well in advance of the consideration of any applications for OWF development in Ireland's coastal waters. It is designed to ensure that projects likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effect, prior to development consent being given. In the current Foreshore Licence application, RWE are applying for authorisation to undertake a geotechnical and geophysical site investigation for the proposed Dublin Array offshore wind farm development in spite of the fact that it is clear that	a Statutory Sanction as received from the Commissioners of Irish Lights and an Automatic Identification System Licence issued by the Commission for Communications Regulation. The Applicant noted this metocean and wind survey campaign is authorised for a period up to August 2023 (two years post successful calibration). A further metocean and wind campaign is included within this foreshore licence application to provide a longer term data set to inform the design of the proposed wind farm. The Applicant noted that the Appropriate Assessment Report prepared on behalf of the Competent Authority (Minister and Department of Housing, Local Government and Heritage) in relation to the previous Foreshore Licence FS007029, concluded that the proposed Site Investigation works were not likely to pose a significant likely risk to nature conservation interests of any of the adjacent Natura 2000 sites. With the exception of the metocean and wind survey campaign which is ongoing and authorised to continue for a period up to August 2023, RWE have completed all of the survey and site investigation activities that they intend to undertake under that Licence. The Applicant noted that there is, accordingly, no temporal overlap between the proposed site investigations and ecological surveys the subject of the current Foreshore Licence application, and the site investigations and surveys conducted under the previous Foreshore Licence (with the exception of the metocean and wind survey campaign). There is, in fact, a significant interval between the previous activities completed between February and May 2021, and the proposed activities to be licensed under the current application. It is therefore considered that there is no potential for significant effects to arise from the proposed activities in combination with the activities undertaken previously between February – May 2021. The Applicant noted that it is typical of marine projects to undertake a series of surveys and site investigations as part of an iterative design and assessment process. Due to the variable nature of the marine environment there is also a need for site investigations and surveys to

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no robust site selection process which explicitly includes consideration of benthic habitats, marine mammals, birds and visual receptors has been undertaken. While it was a requirement even when initial applications were made for Foreshore Licences for site investigation on the Kish and Bray Banks in 1999, lax application of the law appears to have facilitated the granting of early consents with no environmental constraints. However, with regard to this current Foreshore Licence application, it must be concluded from even a cursory assessment of the suitability of this site, the site is completely unsuitable for the type of development envisaged. **Appropriate Assessment of potential impacts on protected habitats and species.** In the introduction to the Applicant's Natura Impact Statement the Appropriate Assessment process is described at 1.3.3 stating: 'AA is required where the AA screening stage determines that the proposed works are likely to have a significant effect on a Natura 2000 site with respect to its Conservation Objectives. This second stage considers whether the proposed works (either alone or in-combination with other projects or plans), will result in an Adverse Effect on the Integrity (AEoI) of a European site. Where AEoI are identified or where an adverse effect is uncertain, mitigation will be required. Mitigation measures will avoid impacts and effects at source insofar as possible and will be clearly stated together with an explanation as to how the measures will avoid or reduce the adverse effects. The report produced for the AA of projects is known as a Natura Impact Statement (NIS) and documents the findings of this stage of the process.' CCA contends that with regard to Natura 2000 habitats and species that the Precautionary Principle must apply and that this precludes the application of mitigation measures. The acknowledgement that mitigation measures will be required across a range of species and habitats contravenes the Habitats Directive in failing to provide complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposed works. Example	be kept up to date if they are to inform the process. Investigations proposed have been undertaken in accordance with relevant industry practice and guidance. The Applicant stated there is no indication that any surveys associated with the Dublin Array project, undertaken to date, have had any significant effect on the receiving environment. The proposed activities, the subject of the licence application, will be subject to screening for Appropriate Assessment and Appropriate Assessment pursuant to Article 6(3) of the Habitats Directive which incorporates the protection of the species listed in the Birds Directive, and will be subject to a preliminary assessment under the EIA Directive and if considered necessary, screening for EIA. The application documentation will be assessed by the Minister and Department of Housing, Local Government and Heritage and its associated advisors prior to a determination being made. The Applicant referred to Section 7.4 of the Report to Inform Appropriate Assessment that an in combination screening assessment has been completed. As there is potential for some surveys which are the subject of the CWP Foreshore Licence to overlap spatially and temporally with the activities which are the subject of this Foreshore Licence application the CWP Foreshore Licence was taken forward and assessed within the Natura Impact Statement, Section 4.3. The in-combination assessment concluded that there will be no adverse effects on the integrity of any European Site arising from the proposed activities in-combination with other plans and projects. The Applicant further referenced Section 7.4 of the Report to Inform Appropriate assessment to explain why the North Irish Sea Array (NISA) investigative surveys are screened out of further assessment. The application document for NISA concludes that the effects of geotechnical, metocean and benthic ecology surveys are considered to be localised (immediate footprint of the equipment or in the case of drilling within 100m of the drilling equipment). Therefore, in

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There are numerous examples in the Applicant's Natura Impact Statement and EIA Screening and Environmental Report where it is acknowledged that mitigation will be required with regard to impacts on Natura 2000 habitats and species (e.g. birds, cetaceans), CCA cite the proposed works described in the EIA Screening and Environmental Report 2.3.3. with regard to epibenthic trawls and grab sampling, the failure to specify the locations for these proposed works and the failure to acknowledge that these proposed works could impact Natura 2000 sites. EIA Screening and Environmental Report 2.3.3 Interpreted geophysical data will be used to provide ground types and seabed features across the array area and Offshore ECC together with any third party data available across the wider Foreshore Licence application area. This will be used to refine the selection of benthic ecology survey locations to ground truth the data and to provide material for biological sampling. Up to three annual subtidal benthic ecology surveys, comprising drop down video, grab sampling and epibenthic trawls (locations yet to be defined) (underline added). Samples will be taken using a Hamon or Van Veen grab (0.1 – 0.2 m2) with a stainless steel bucket at up to 90 locations. Sample depth may be up to 20 cm depending on seabed type. The grab will be deployed and retrieved by winch. Drop down video (DDV) will be deployed at each sampling location prior to grabs being taken. Epibenthic sampling (90 no.) using a standard 2 m Cefas beam trawl fitted with a 5 mm cod designed to collect information on epibenthic invertebrate species, as well as small demersal and juvenile fish. Trawls will be standardised by length (500 m) or duration (10 minutes); The array area on which these grab samples and epibenthic trawls are proposed is on the Kish and Bray Banks. These banks are Annex 1 Habitat type 1110 'sandbanks slightly covered by seawater all the time'. There are two proposed Export Cable Corridors (ECC) covering large areas within the Foreshore Licence Application Area, that encompasses SACs and SPAs on which grab sampling and epibenthic benthic trawls are also proposed. This Kish Bank is known to be an ecologically rich habitat, with calculated diversity, richness and evenness that is broadly similar to those sandbanks	combination effects between the surveys at Dublin Array and NISA due to geotechnical, ecological or metocean activities are not considered likely. **Cumulative impact - Cetaceans** The Applicant noted that in the supporting marine information for the Rockabill to Dalkey Island SAC3, artificial barriers refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range". As noted in Annex E, Section 6.2 any disturbance associated with the proposed works which are the subject of this application will occur over a small area, in proximity to the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. The Applicant stated that therefore, there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. The Applicant noted that the assessment of effects without mitigation in place, presented in Section 4.2 of the Natura Impact Statement, Annex F, acknowledges the potential for localised disturbance effects on harbour porpoise from the activities proposed. The subsequent assessment with mitigation in place concludes that no individual harbour porpoise will be impacted by the surveys. The Applicant concluded that there is no potential for the harbour porpoise community at the site be adversely affected. The Applicant noted that it is theoretically possible to convert between SPLrms and SELcum, however the conversion is based on a series of assumptions, which results in impact ranges which are so extremely conservative as to not provide anything meaningfully relevant to biological organisms. The primary assumptions are that the animal is

[3] https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabill%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

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designated as habitats of community importance within the UK jurisdiction. Unsurprisingly, the Kish and Bray Banks were selected for designation as a Special Areas of Conservation (SAC) by National Parks and Wildlife Service in 2012. In addition, a 2012 document seeking Ministerial approval for the designation of marine sites as SACs stated 'It is anticipated that the Kish Bank will be designated as a Special Protection Area for birds in the future.' Indeed, an earlier environmental assessment carried out on behalf of Dublin Array stated 'The Bank itself has sufficient conservation value to qualify for SPA status, solely on the grounds of the roseate tern numbers that use it.' Since 2007, evidence from EU Conservation Assessment reports confirm that the construction of wind farms on sandbanks will degrade the habitat. This is re-iterated in a 2020 publication from National Parks and Wildlife Service 'The Monitoring of six EU Habitats Directive Annex 1 Marine Habitats. Commenting on sandbanks slightly covered by seawater all the time this report states '… potential threats to the habitat are considered to include the potential impacts of wind energy infrastructure in the vicinity of the habitat.' It is obvious from this information, all taken from official sources, that (a) Kish and Bray banks are Annexe 1 type sandbank habitat and should be protected and not knowingly degraded due to extensive Offshore Renewable Energy (ORE) development. (b) knowing degradation of such habitats is in contravention of Ireland's Biodiversity Action Plan 2017-2021 that aims to 'protect and restore' biodiversity and habitats (c) a site that was selected by National Parks and Wildlife for designation as a SAC and that, furthermore, is earmarked as a site that will be designated as a Special Protection Area for Birds, is a totally inappropriate site on which to construct a windfarm. (d) the carrying out of grab samples and epibenthic trawls in unspecified locations across a Foreshore Licence Application area of almost 113,000 hectares that encompasses numerous Natura 2000 sites, all listed in the Foreshore Licence	stationary and facing towards the source of the noise for the entire duration of the impact (up to 24-hours of constant exposure). These assumptions are not realistic for the real-world application of the assessments, as individuals would not feasibly behave in this way and would in fact move away from the sound source (even if not explicitly showing a fleeing reaction). Additionally, studies (Au, 1993) have demonstrated that animals not directly facing the sound of source can be exposed to significantly quieter received sounds (3 – 10dB lower for an animal moving away compared to moving towards a noise source). Therefore, for the marine mammal assessments being discussed any numbers presented following a conversion between SPLrms and SELcum would be considered to have no real word implications and are not valid for these assessments. Additionally, the Applicant noted that when looking at examples of noise propagation modelling for drilling from other projects (for example East Anglia Two which modelled drilling for monopiles, which is louder and more impactful than that considered within this assessment), the ranges for Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS) were concluded to be <100 m for a fleeing animal. One hundred meters is the lowest resolution possible for the model and it is therefore likely that the realistic impact ranges are smaller than this. This modelling for East Anglia Two was based on a much more intensive noise source, for drilling of large monopile foundations rather than small scale coring, and it can be assumed that the maximum potential impact range for the Dublin Array survey works will be further reduced from this number. Therefore, there is no risk of any auditory injury to marine mammals from the proposed works at Dublin Array. The Applicant referred to the supporting marine information for the Rockabill to Dalkey Island SAC[4], to indicate that artificial barriers refer to "proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat

[4] https://www.npws.ie/sites/default/files/publications/pdf/003000_Rockabill%20to%20Dalkey%20Island%20SAC%20Marine%20Supporting%20Doc_V1.pdf

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Application documents, is not consistent with providing complete, precise and definitive findings and conclusions capable of removing all reasonable doubt as to the effects of the proposed works and is, therefore in breach of art 6(3) of the Habitats Directive. **Current RWE Foreshore Licence Application FS007188** Cumulative Impacts - adjoining, neighbouring and related developments The current RWE Foreshore Licence Application gives information about the background to the project and details of the site investigation and monitoring activities for which the Licence is required. However, all adjoining, neighbouring and related developments have not been considered. CCA object to the granting of another Foreshore Licence to this consortium given that, as is stated in the current application, a Foreshore Licence was granted to Innogy Renewables Ireland Ltd. (now RWE) in January 2021 with respect to this proposed development on the Kish and Bray Banks and RWE, pursuant to the awarding of that licence, completed a successful geophysical, geotechnical and benthic survey campaign between February and May 2021. These are the same types of investigations for which a second Foreshore Licence is now sought. While the current Environmental Impact Assessment Screening (p31.10) considers the potential for cumulative impacts with some other existing or planned activities in the locality, it fails to consider the cumulative impacts of repeated surveys relating to a single proposed development. In particular in this instance, the most recent survey was carried out this year, yet no consideration has been given to its impacts when combined with the further investigative works for which another Foreshore Licence is now sought. The current Licence Application also states that as far back as 2000, Licences were awarded that gave consent for drilling and sampling of seabed sediments, geophysical measurements and deployment of wave, tide current and silt load measurement equipment, highlighting the fact that impacts of extensive investigative procedures relating to this proposed development have been accumulating for over two decades without any or any proper regard to the cumulative impacts of the proposed development with other developments and the remedial obligation on the developer and the decision maker to redress any	therein. It does not refer to short-term or temporary restriction of access or range". As noted in Annex E (6.2.17), any disturbance associated with the proposed works which are the subject of this Foreshore Licence application will occur over a small area, approximately 100m from the survey vessel undertaking the work. As such any disturbance in any one area will be limited to a period of a few days as the survey vessel undertakes work in that area. Therefore there will be no barrier effect, as defined by the supporting marine information for the Rockabill to Dalkey Island SAC. Neither will the harbour porpoise community at the site be adversely affected as with mitigation in place no individuals will be impacted by the surveys. The Applicant noted that the Report to Inform Appropriate Assessment undertook a screening exercise for all Natura 2000 sites using the source-pathway-receptor approach to determine all effect pathways to European sites for the survey activities. In line with recent guidance (Office Planning Regulator, 2021) and EC Methodological Guidance on Article 6(3) and 6(4) of the Habitats Directive (EC, 2021)the screening considered all sites that fell within the defined Zone of Influence of activities. In the case of mobile species the Zone of Influence captures remote sites where species distribution/ ranges provide connectivity. The Applicant referred to Section 4.2 of the Applicant's NIS, Annex F, to acknowledge that without mitigation in place there is potential for localised disturbance effects on harbour porpoise from the activities proposed; no risk of injury, including PTS is likely. The Applicant noted that they have committed to mitigation proposed for marine mammals in accordance with the appropriate Irish guidance (DAHG, 2014). DAHG, 2014 states that while the use of PAM in Ireland is encouraged as a helpful and beneficial tool for detecting and monitoring certain cetacean species, the Department does not believe it is sufficiently developed to be regarded as the primary or sole monitoring approach for risk management purposes. Therefore whilst PAM is likely to be used by the survey company appointed to undertake the works in addition to marine mammal observers -conservatively the assessments as documented in the NIS

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deficiencies, omissions and lacuna in respect of the environmental assessment undertaken for previous consent. In addition, on 28 January 2021 a Foreshore Licence was awarded to Codling Wind Park (CWP). The area covered by the CWP Foreshore Licence overlaps significantly with the area included in the Licence granted to Innogy Renewables in 2021, and with the site in question in the current licence application, further exacerbating the potential for cumulative adverse environmental impacts. At 2.6. in the Foreshore Licence Application, distance from nearest other developments, including any offshore renewable energy developments on the foreshore, are recorded. This section includes reference to proposed offshore wind developments at Codling Wind Park and at Braymore Point. However, other offshore renewable energy licence application areas are located close to the proposed foreshore licence boundary, for example the North Irish Sea Array application area, that is closer to the current Foreshore Licence application area than Braymore Point, but it is not referenced or considered in the assessment of cumulative impacts in the current environmental assessment. **Cumulative impact – Cetaceans** With regard to the manner in which the impact on cetaceans is considered CCA do not deem the information to be the 'best available scientific evidence' According to the Natura 2000 statement, "the Conservation Objectives to maintain the favourable conservation condition of Harbour Porpoise (*Phocoena phocoena*) [1351] within the Rockabill to Dalkey Island SAC, are defined by the following list of attributes and targets: Species range within the site should not be restricted by artificial barriers to site use; and Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site." Both as a result of noise disturbance and physical destruction of reefs, there is admittedly by phase 1 assessment in the Natura 2000 Statement presented, a "potential for adverse effects" on the qualifying interests (QIs) of the SAC.	submitted with the application have not relied on the use of PAM as mitigation. **The Offshore Renewable Energy Development Plan - Strategic Environmental Assessment.** The Applicant noted that the intended reference was in relation to the National Marine Planning Framework and should read Strategic Environmental Assessment for the Offshore Renewables Energy Development Plan (2010) and any confusion created by this error is regretted. **Relevant Projects.** The Applicant referenced Section 100 of the Maritime Area Planning Act 2021 that defines a 'relevant MAC usage' as including any proposed maritime usage which is for the purposes of producing, from wind, offshore renewable energy where the usage – (a) is the subject of an application for a foreshore authorisation made before 31 December 2019 and which has not been finally determined, or abandoned or withdrawn, before the coming into operation of s.101, (b) is the subject of a foreshore authorisation, or (c) was, on 31 December 2019, the subject of (i) a valid connection agreement from a transmission system operator, or (ii) confirmation by a transmission system operator as being eligible to be processed to receive a valid connection offer. The Dublin Array project therefore is one of a number of projects that is eligible to be invited by the Minister pursuant to section 101 to apply for a MAC, within such period as the Minister's invitation may prescribe. Subject to award of a MAC the proposed Dublin Array wind farm will still be required to apply for development consent to An Bord Pleanála similar to other strategic infrastructure projects developed (and under development). This development consent application will be subject to public consultation and independent environmental impact assessment by An Bord Pleanála

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As outlined in the Natura 2000 statement presented, "With regards the harbour porpoise feature and the temporary overlap with the calving period of harbour porpoise (May to August) within Rockabill to Dalkey SAC, the noise associated with the proposed works described in Section 6.2 and 6.3 of Annex E: Report to Inform AA Screening have the potential for localised disturbance and have potential to disturb and/or displace fish prey items of all cetacean and pinniped species resulting in localised indirect effects" Section 4.2.6 (p. 60) of the Natura 2000 statement states that "The geotechnical works fall outside the range of hearing thresholds for harbour porpoise". Based on other surveys of a similar nature (e.g. FS007339 on Arklow Bank), this statement appears to be assuming a SPL (non-weighted, peak frequency) approach rather than a SEL (weighted frequency approach), which is the current gold standard for appropriate assessment on noise on marine mammals and is, therefore, the best available scientific evidence. Provided in the same paragraph (Section 4.2.6 (p. 60)) of the Natura 2000 statement states that "given that any noise impacts on cetaceans and their prey would be short term, temporary and intermittent…. potential for disturbance to the species will be minimised and no impacts on the Conservation Objectives of the SAC are predicted." We do not accept this statement and would present that the noise disturbance and inhibition of QI species and their food source represents a "restriction by artificial barrier" and is contraindicated by the conservation objectives of the SAC. No quantification of the Zone of Inhibition (ZoI) is presented in the Natura 2000 statement, which is contrary to good practice for Appropriate Assessment and without which no appropriate assessment on the impact of the Qis of the SAC can be provided. With regard to mitigation measures in place to inhibit PTS in marine mammals, no mention of the use of passive acoustic monitoring (PAM) has been mentioned, which would be required for the 'qualified observer' to ensure that no marine mammals were present within the zone of inhibition prior to initiating noise creating works. An observer, no matter how qualified will likely miss sensitive	

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marine mammals in the vicinity without the use of this apparatus and as such a likely significant risk remains in place. Based on these facts it is obvious that, in relation to the current Foreshore Licence application, potential cumulative environmental impacts have not been adequately described or assessed **The Offshore Renewable Energy Development Plan - Strategic Environmental Assessment.** In the EIA Screening and Environmental Report presented in support of this application at 4.1.2 it states 'Consideration has also been given to the findings and objectives within the National Marine Planning Framework (DHLGH, 2021) and the Strategic Environmental Assessment for the Offshore Renewables Energy Development Plan (DHLGH, 2021).' The Offshore Renewable Energy Development Plan, drafted in 2010 was adopted in 2014 having been seriously criticised as a result of the numerous data gaps and the lax methodology employed in drafting the plan. All official documents stated that the OREDP would be subject to an interim review of the Plan and associated SEA in 2017 with a full review of both to be carried out in 2020. The Offshore Renewable Energy Development Plan (OREDP) – Interim Review (published May 2018) states (Page 3) This Review Report focuses exclusively on the OREDP and does not incorporate a review of the associated SEA. It is important to note that this review does not make any changes to the OREDP; rather the review aims to chart progress on the Plan, identify challenges that have emerged and identify areas that need to be prioritised or require further attention. A full review of the Plan and associated SEA will take place in 2020. Given the major developments in technology and environmental assessment since the OREDP and its associated SEA were published and indeed the serious questions surrounding underlying data and methodology, CCA have been keenly awaiting the required review of the Plan and associated SEA due in 2020. Over the past two years, CCA have written to the Minister seeking details of progress on this. Our most recent communication was sent in the past few weeks.	

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In spite of this, no information has been provided to CCA on the required full review of the Plan and associated SEA. We note with deep concern the reference in the Dublin Array application quoted above (4.1.2) to the SEA of the OREDP (DHLG 2021). This reference to a vital Strategic Environmental Assessment which has not been published or subject to public consultation highlights the unacceptable lack of transparency and absence of democracy surrounding the development of ORE in Irish waters. Clearly long awaited and crucial environmental information which is not in the public domain has been made available to RWE (or its agents) to promote this vast industrial development on vulnerable near shore habitat. It is clearly impossible for the public or a citizens' group like CCA to make comment on a crucial Foreshore Licence application, when information presented in support of the application is not in the public domain and indeed appears to have been has been withheld from concerned stakeholders/the public as evidenced by the failure to provide it to CCA **Relevant Projects.** In May 2021, the Minister announced the designation of Relevant Project status that was conferred on certain offshore renewable energy project applications. This designation, with enormous consequences for damage to the environment, was cooked up behind closed doors. There was NO public consultation, no strategic environmental assessment, no advance public notification etc. The Library and Research document written to the explain the Maritime Area Planning Bill specifically states 'In January 2020, the Departments of Housing, Planning and Local Government and Communications, Climate Action and the Environment developed and published a transition protocol and invited applications (from these 'Legacy or Relevant Projects').' CCA contend that the manner in which this protocol was drafted and the awarding of priority status to proposed massive offshore wind developments is in breach of the Aarhus Convention and the EIA Directive, by failing to provide the public with any opportunity to consider the implication of the designation of these 'Relevant	

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Projects', especially at a time when, due to Covid restrictions, the focus of the public was elsewhere. This is yet another example of the State not acting 'in the public interest' as they are required to do. **Conclusion** CCA believe that, for the reasons presented in this submission, no further foreshore licence should be awarded to RWE renewables on the site proposed in this current Foreshore Licence application and ask the Minister to reject this application, in the public interest."	

1.4 Legislative context

The *Foreshore Act 1933* (as amended), requires that a lease or licence must be obtained from the Minister for Housing, Local Government and Heritage for the carrying out of works or placing structures or material on, or for the occupation of or removal of material from, State-owned foreshore.

The 1992 EU Habitats Directive (Council Directive 92/43/EC) and Birds Directive (2009/147/EC) are transposed into Irish law by Part XAB of the *Planning and Development Act 2000* (as amended) and the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended). The latter outlines the requirements for screening for AA and AA under Regulation 42:

> *42. (1) A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.*
>
> *(2) A public authority shall carry out a screening for Appropriate Assessment under paragraph (1) before consent for a plan or project is given, or a decision to undertake or adopt a plan or project is taken.*
>
> *(6) The public authority shall determine that an Appropriate Assessment of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site.*
>
> *(9) Where a public authority is required to conduct an Appropriate Assessment pursuant to paragraph (6) in relation to a plan or project that it proposes to undertake or adopt, it shall —*
>
> *(a) prepare a Natura Impact Statement,*
>
> *(b) compile any other evidence including, but not limited to, scientific evidence that is required for the purposes of the Appropriate Assessment, and*
>
> *(c) submit a Natura Impact Statement together with evidence compiled under subparagraph (b) to the Minister not later than six weeks before it proposes to adopt or undertake the plan or project to which the Natura Impact Statement and evidence relates.*
>
> *(11) An Appropriate Assessment carried out under this Regulation shall include a determination by the public authority under this Regulation pursuant to Article 6(3) of the Habitats Directive as to whether or not a plan or project would adversely affect the integrity of a European site and the assessment shall be carried out by the public authority before a decision is taken to approve, undertake or adopt a plan or project, as the case may be.*

(12) In carrying out an Appropriate Assessment under paragraph (11) the public authority shall take into account each of the following matters —

(a) the Natura Impact Statement,

(b) any other plans or projects that may, in combination with the plan or project under consideration, adversely affect the integrity of a European Site,

(c) any supplemental information furnished in relation to any such report or statement,

(d) if appropriate, any additional information sought by the authority and furnished by the applicant in relation to a Natura Impact Statement,

(e) any information or advice obtained by the public authority,

(f) if appropriate, any written submissions or observations made to the public authority in relation to the application for consent for proposed plan or project,

(g) any other relevant information.

A Screening for Appropriate Assessment has been carried out and determined that it could not be excluded, on the basis of objective scientific information, that the proposed works, individually or in combination with other plans or projects, will have a significant effect on a European site. This report details the Stage 2 Appropriate Assessment of the Project.

Relevant guidance informing the AA includes that at a European (European Commission 2019, European Commission 2021) and national (DoEHLG 2010) level.

SECTION 2 - DESCRIPTION OF PROPOSED WORKS

2.1 Site location

The Foreshore Licence application area lies off the east coast of Ireland, extending from just north of Howth head to south of Greystones, within Ireland's 12 nautical mile limit. The application area includes the proposed wind farm array area in the vicinity of the Kish and Bray Banks, which lie east of the coast between Dun Laoghaire and Greystones, and potential export cable route corridors to shore. The application area also includes a buffer area around the proposed wind farm array area, extending 16 km to the north and to the south, to the limit of territorial waters to the east and to the adjoining the coast to the west in the counties of Fingal, Dublin City, Dun Laoghaire-Rathdown and Wicklow.

The total Foreshore Licence application area encompasses an area of 1,130 km^2 and the application is for a licence duration of five years.

Figure 2.1 shows the Foreshore Application area, delineated by a red line with the array area outlined in purple.

It is proposed that geophysical (see Table 2.1 for a list of representative equipment) and geotechnical surveys will be undertaken in the area of the proposed array in which, subject to development consent being granted, the proposed wind turbine generators (WTG) and offshore export cable corridor (Offshore ECC) may be located, and two associated cable landfall locations at Poolbeg and Shanganagh.

It is proposed that ecological monitoring will be undertaken, and static acoustic monitoring devices will be deployed in the buffer area around the array.

The location of the proposed geotechnical and geophysical surveys is shown in Figures 2.2. Figure 2.3 indicates the proposed locations of the static acoustic monitoring devices and Figure 2.4 indicates the locations of the buoy-mounted Floating Lidar (FLiDaR) Units and the buoys incorporating wave and current measurement devices. These locations are indicative.

2.2 Proposed site investigations

The site investigations will include:

- Geotechnical survey;
- Geophysical survey;
- Metocean monitoring (wind, wave and current measurements);
- Environmental/Ecological
    - Static Acoustic Monitoring;
    - Benthic subtidal monitoring;
    - Benthic intertidal monitoring; and
    - Fish and shellfish monitoring.

Table 2.1: Proposed equipment to be used for the geophysical surveys

Survey technique	Operating frequency (kHz)	Estimated sound level at 1m over frequency band 10Hz-10kHz	Towed/ Hull mounted	Indicative model
Side-scan sonar (SSS)	300-500 (low) 500-900 (high)	228 SPL (dB re1µPaPeak)	<300m from vessel	EdgeTech 4205
Multi-beam Echosounder (MBES)	190-420	200-235 SPL (dB re1µPaPeak)	Hull or pole-mounted	RESON Seabat T50R
Magnetometer	Passive	Passive	300m from vessel	Single G882 Marine magnetometer
Sub Bottom Profiler (pinger)	85-115	247 SPL (dB re 1 µPa 1m, peak)[5]	Hull- or pole-mounted, or towed 150m from vessel	Innomar Medium SES-2000
UHR Seismic Sparker	0.4-6	200-225 SPL (dB re1µPa peak)	150m from vessel	Geo-Source stacked dual 400
USBL	21-31	190-206 SPL (dB re1µPa m)[6]	Vessel mounted transponder – receiver on towed equipment	Kongsberg HiPAP
Refraction (landfalls only)	5-150Hz	230 SPL (dB re1µPa peak)	50 - 100 m from vessel A sensor string of length 100m to 235m will be laid on the seabed to record the response.	Seismic source, such as weight drop or vibrating pot.

[5] See https://www.str-subsea.com/uploads/Innomar-SES-2000-medium-100-Sub-Bottom-Profiler-System.pdf

[6] In their response to an RFI (May 2022), the applicant provided details of the type of USBL system expected to be used and provided an estimated SPL of 294 dB re1µPa peak. This is thought to be an error as source levels provided for a range of HiPAP systems (p40 of the HiPAP product description https://www.kongsberg.com/contentassets/7a73952ac48b4ca3900423dc35f6b142/400578f-hipap-pd.pdf) are in the range provided in Table 2.1.

Figure 2.1: Foreshore Licence Application Area (Source: Annex C - EIA Screening and Environmental Report, Ch 1, pg. 8)

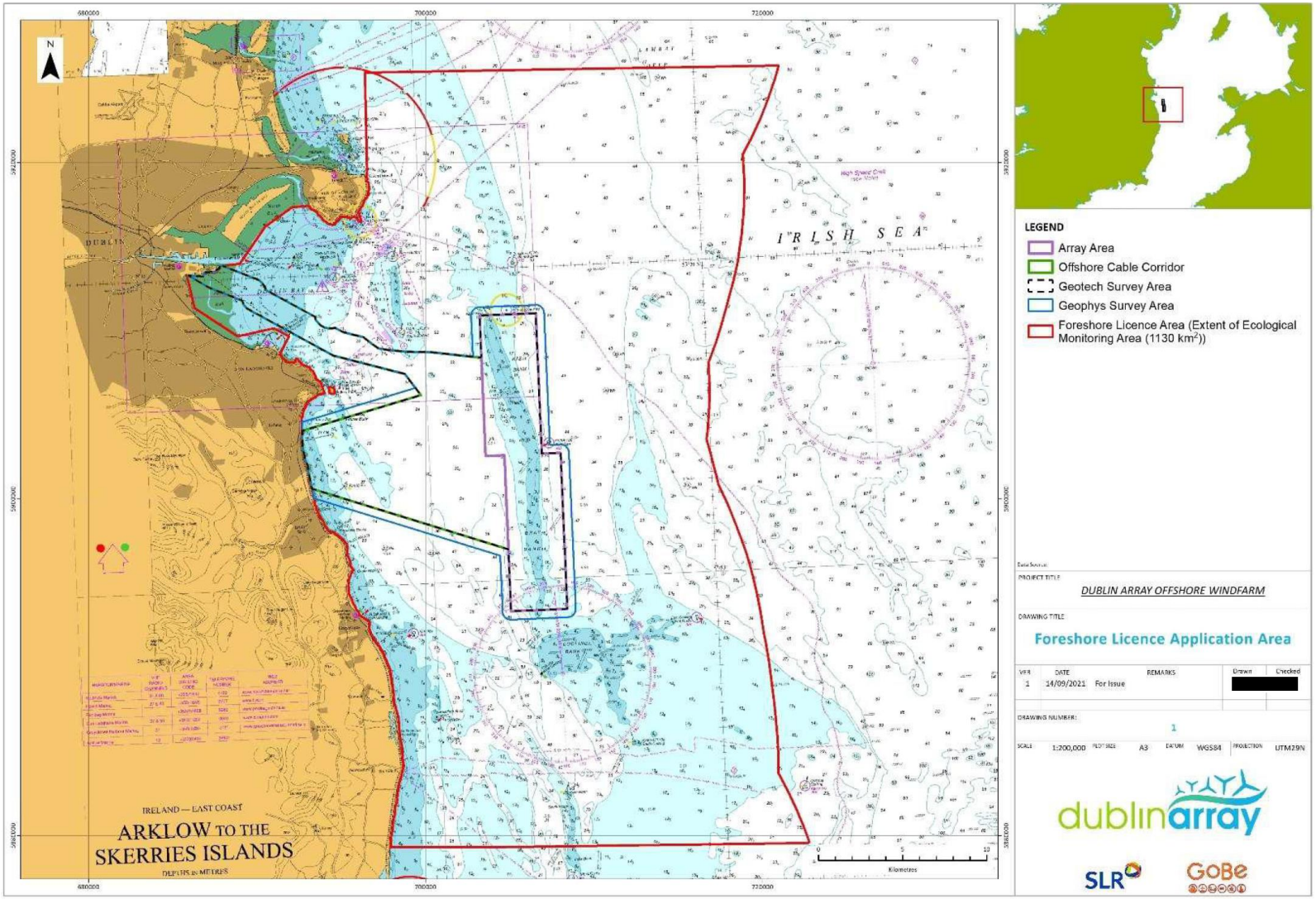


Figure 2.2: Indicative geotechnical and geophysical survey locations (Source: Annex C - EIA Screening and Environmental Report, Ch 2.5, pg. 15)

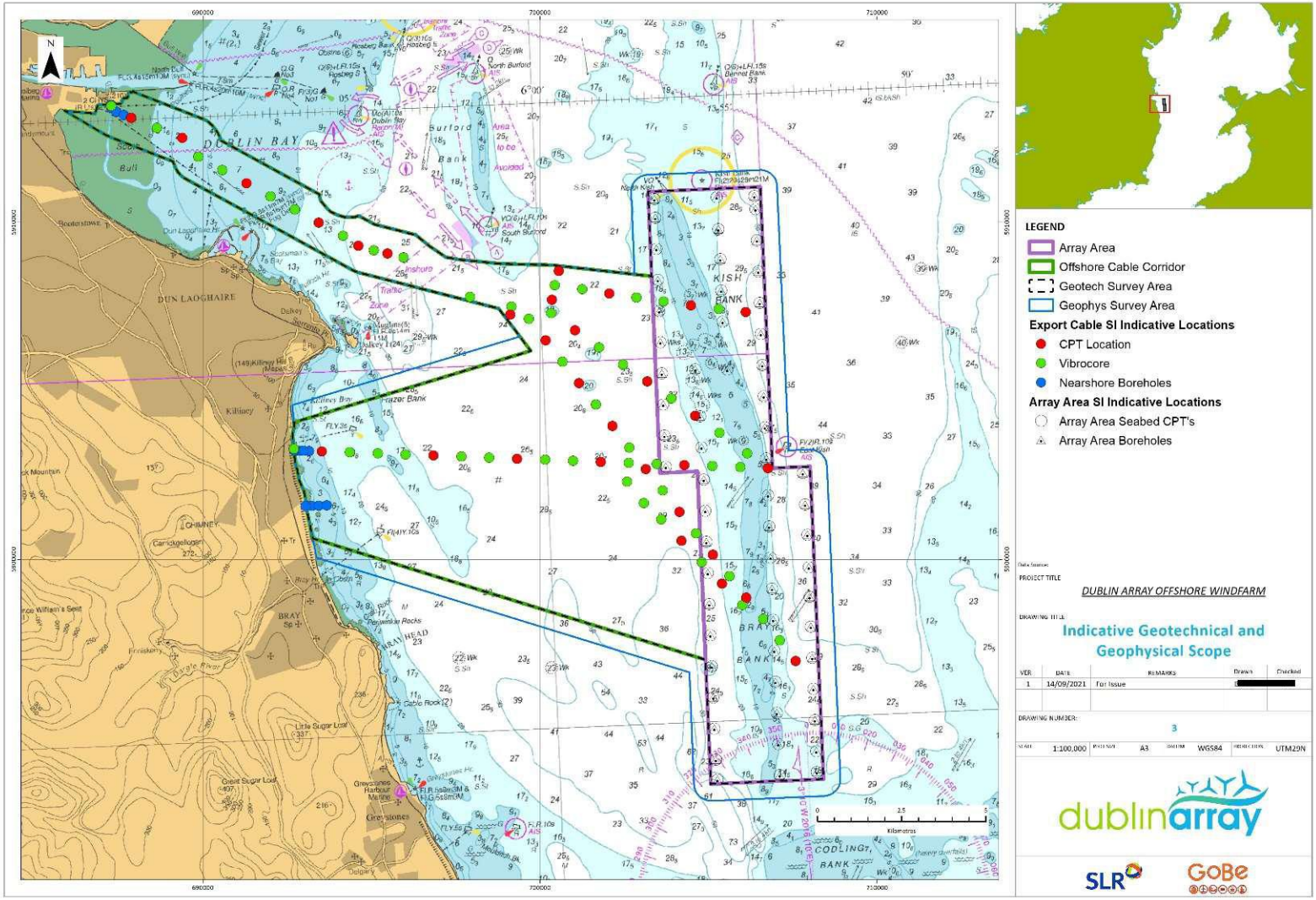


Figure 2.3: Indicative location of Static Acoustic Monitoring devices (Source: Annex C - EIA Screening and Environmental Report, Ch 2.5, pg. 18)

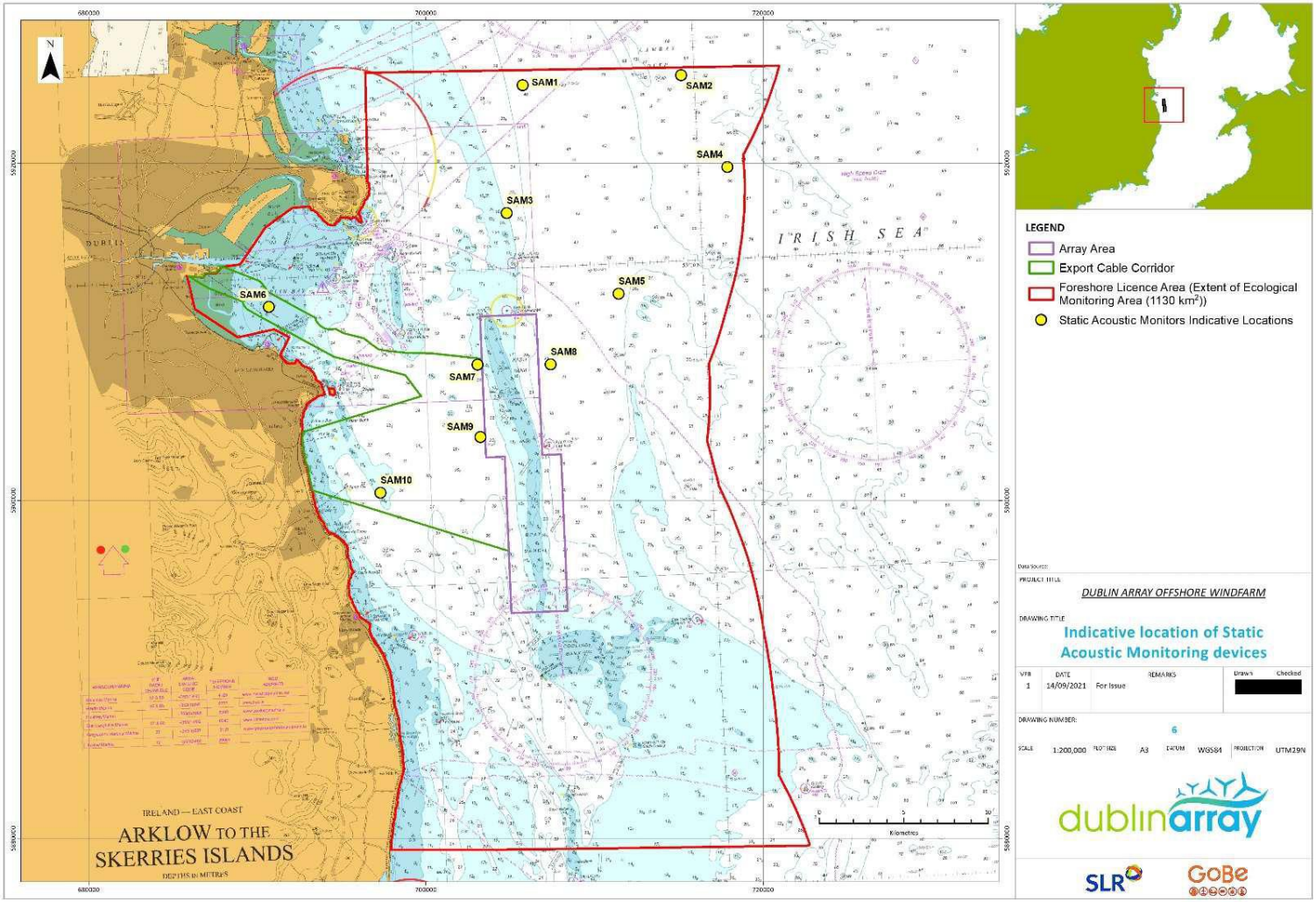
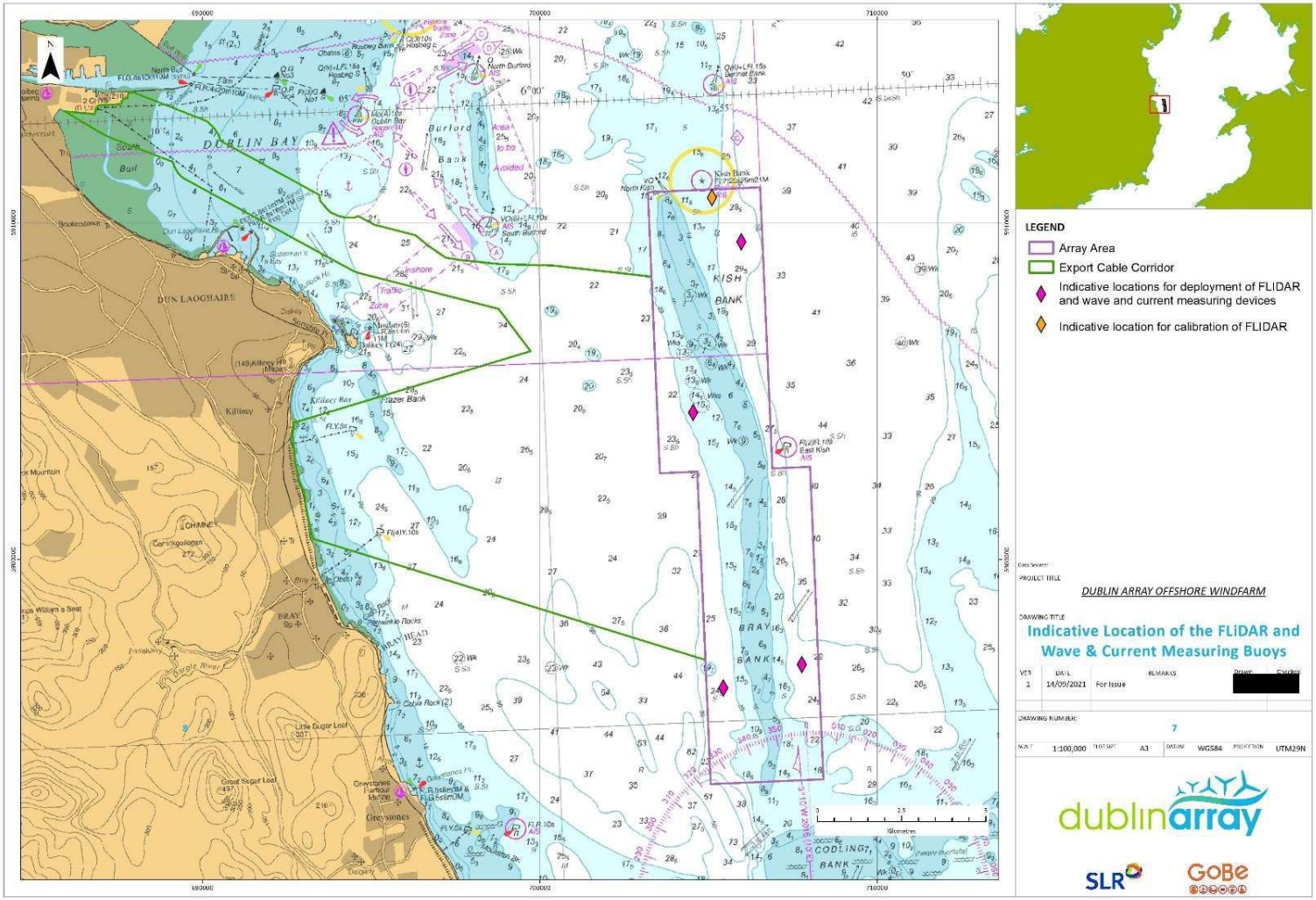


Figure 2.4: Indicative location of planned metocean buoys (Source: Annex C - EIA Screening and Environmental Report, Ch 2.5, pg. 19)



2.3 Survey summary

Table 2.2 provides information on each of the elements of the works and an indication of the survey duration. The survey locations are shown in Figures 2.2-2.4 above.

Table 2.2: Summary of surveys and indicative programme

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
Geotechnical Surveys	Array area, proposed foundation locations	Up to 61 geotechnical boreholes with wireline logging to approximately 80 m below seafloor, with an outside diameter of up to 254 mm.	Typical vessel will be approx. 70m-100m in length with 4m draft. Jack-up barges may be required. The barge legs will have a seabed footprint of approximately 15-20m^2.	Approximately 2-3 months has been allocated for offshore geotechnical surveys with an aim to commence in Summer 2022. The timing of these works is weather dependant and will vary depending on vessel availability and ground conditions encountered.
	Array area, proposed foundation locations	Up to 61 deep push seafloor cone penetration tests (CPT) to approximately 80 m below seafloor with a diameter of approximately 40mm.	Typical vessel will be approx. 70m-100m in length with 4m draft. Jack-up barges may be required. The barge legs will have a seabed footprint of approximately 15-20m^2.	

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
	Cable export route extending into the array	Up to 31 seafloor CPTs to target depth of approximately 6 m below seafloor with a diameter of approximately 40mm. 5 of which may be located within the intertidal area.	Typical vessel will be approx. 70m-100m in length with 4m draft. Jack-up barges may be required. The barge legs will have a seabed footprint of approximately 15-20m^2.	
	Inter-array and export cable routes extending into the array	48 vibrocores, approximately 150 mm diameter and penetration depth of up to 6 m. 5 of which may be located within the intertidal area	Typical vessel will be approx. 70m-100m in length with 4m draft. Jack-up barges may be required. The barge legs will have a seabed footprint of approximately 15-20m^2. Operations are likely to be on a 24-hour basis.	Approximately 2-3 months has been allocated for offshore geotechnical surveys with an aim to commence in Summer 2022. The timing of these works is weather dependant and will vary depending on vessel availability and ground conditions encountered

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
	Landfall	Up to 12 nearshore geotechnical boreholes with wireline logging and rotary cored drilling, of approximately 100 mm diameter, to a target depth of approximately 45 m below the seabed, (up to 4 at each landfall option).	No information provided on vessel.	Approximately 2 months has been allocated for nearshore geotechnical surveys with an aim to commence in Summer 2022. The timing of these works is weather dependant and will vary depending on vessel availability and ground conditions encountered
Geophysical Surveys	Landfall	Refraction survey in the nearshore and intertidal areas.	Rigid inflatable boat (RIB) or on foot.	Approximately 2-3 weeks has been allocated for the intertidal refraction survey with an aim to commence Summer 2022. The timings of these works is weather dependant and will vary depending on vessel availability.

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
	Array area, proposed foundation locations	2D ultra high resolution seismic survey (UHR) and full suite of geophysical survey including: • Bathymetric survey; • Side scan sonar; • Shallow reflection Seismic (sub-bottom profiling); and • Marine magnetometer.	Typical geophysical survey vessels are approximately 70m to 100m with a 4 - 6m draft and operational speed of 5 knots. Smaller vessels (16m – 20m) may be required for sampling nearshore and in shallow water (<7m depth). Operations are likely to be on a 24-hour basis.	Approximately 2-3 months have been allocated for offshore geophysical surveys with an aim to commence in Summer 2022. The timing of these works is weather dependant and will vary depending on vessel availability and ground conditions encountered
	Along proposed export cable corridor	Geophysical survey including: • Bathymetric survey; • Side scan sonar; • Shallow reflection seismic (sub-bottom profiling); and • Marine magnetometer.	Typical geophysical survey vessels are approximately 70m to 100m with a 4m draft and operational speed of 5 knots. Smaller vessels (16m-20m) may be required for sampling nearshore and in shallow water (<7m depth).	

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
Metocean Monitoring	Array area	Wind resource and metocean survey comprising up to two buoy-mounted Floating Lidar (FLiDAR) Units and up to two buoys incorporating wave and current measurement devices.	No information provided on vessel.	The works aim to commence mid 2022. Two buoys with wave and current measurement device swill remain on site for a minimum of two years. Temporary validation deployment for wind measurement equipment is sought for 6-8 weeks.
Static Acoustic Monitoring (Environmental/ Ecological)	Foreshore licence area	Up to 10 static acoustic monitoring devices (SAM) deployed on a seabed mooring with surface marker buoy to detect porpoises, dolphins and other toothed whales.	Vessel with a minimum usable deck space of 18m with low freeboard and deck-mounted towing winch.	The deployment of SAM devices is scheduled for two weeks in mid 2022. The equipment will remain on site for the duration of the Foreshore Licence (5 years) to generate a long-term data set.

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
Benthic Subtidal Monitoring (Environmental/ Ecological)	Foreshore licence area (locations yet to be defined and will be based on geophysical data).	Up to three annual subtidal benthic ecology surveys comprising drop down video (DDV), grab sampling and epibenthic trawls. Methodology will be dependent on seabed type and will vary between a Hamon or Van Veen Grab (0.1 – 0.2m^2) at up to 90 locations. DDV will be deployed prior to each sample being taken. Epibenthic sampling using 2m Cefas beam trawl with a 5mm cod to collect information on epibenthic invertebrate species and small demersal and juvenile fish. Trawls will be standardised by length (500m) or duration (10 minutes).	Approximately 18m in length with a deck-mounted winch. Fishing vessels may be utilised for seasonal trawl surveys.	Approximately 1-2 months per year for up to three years is allocated for subtidal benthic ecology surveys. This will commence in 2023.
Benthic Intertidal Monitoring (Environmental/ Ecological)	Landfall	Up to three intertidal survey comprising walkover surveys and a series of shallow hand cores (up to 48) to be analysed for infauna, sediment granulometry and organic carbon content (typically 90mm in diameter and up to 500mm in depth).	No information provided on vessel.	Approximately 1-2 weeks per year for up to three years is allocated for intertidal benthic ecology surveys. This will commence in 2023-2026.

Activity	Geographical Scope	Survey Requirements	Vessel Size	Indicative Timings
Fish and Shellfish Monitoring (Environmental/ Ecological)	Foreshore licence area	Up to three annual potting surveys, each comprising up to ten fleets of 20 pots (crab/lobster/whelk pots). Seasonal trawl survey to include up to 15 pelagic and otter trawls, undertaken four times a year for up to three years.	Approximately 18m in length with a deck-mounted winch. Fishing vessels may be utilised for seasonal trawl surveys.	Approximately 1-2 weeks per year for up to three years is allocated for fish and shellfish surveys. This will commence in 2023-2026. Seasonal trawls undertaken during winter, spring, summer and autumn in each of these years.

SECTION 3 - APPROPRIATE ASSESSMENT

3.1 AA screening outcome

The screening assessment concluded that the following likely significant effects from the proposed site investigations on the qualifying interests of a number of relevant sites (shown on Figure 3.1) could not be discounted, and that Appropriate Assessment was required, covering:

SACs

Direct disturbance to habitats

- Rockabill to Dalkey Island SAC (reefs, harbour porpoise)
- South Dublin Bay SAC (Mudflats and sandflats not covered by seawater at low tide, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows (Glauco-Puccinellietalia maritimae), Mediterranean salt meadows (Juncetalia maritimi))
- South Dublin Bay and River Tolka Estuary SPA (light-bellied brent goose, oystercatcher, ringed plover, grey plover, dunlin, Arctic tern, bar-tailed, godwit, redshank, knot, black-headed, gull, roseate tern, common tern, Arctic tern, sanderling, wetland and waterbirds)
- North Bull Island SPA (light-bellied brent goose, shelduck, teal, pintail, bar-tailed, godwit, curlew, redshank, turnstone, black-headed gull, dunlin, black-tailed godwit, sanderling, shoveler, oystercatcher, golden plover, grey plover, knot, wetland and waterbirds)

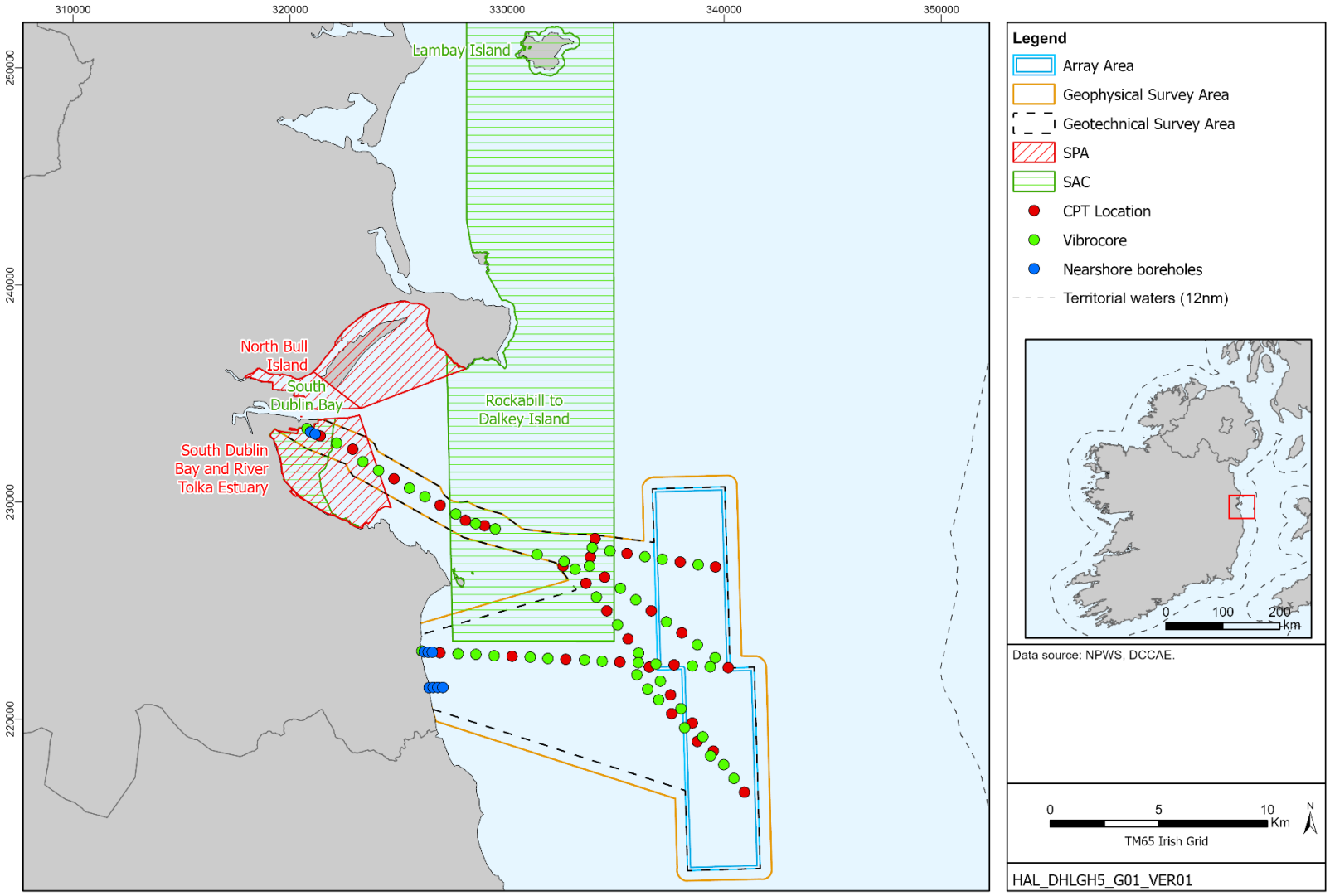
Underwater noise

- Rockabill to Dalkey Island SAC (harbour porpoise)
- Lambay Island SAC (grey seal, harbour seal)
- South Dublin Bay and River Tolka Estuary SPA (light-bellied brent goose, oystercatcher, ringed plover, grey plover, dunlin, Arctic tern, bar-tailed, godwit, redshank, knot, black-headed, gull, roseate tern, common tern, Arctic tern, sanderling)
- North Bull Island SPA (light-bellied brent goose, shelduck, teal, pintail, bar-tailed, godwit, curlew, redshank, turnstone, black-headed gull, dunlin, black-tailed godwit, sanderling, shoveler, oystercatcher, golden plover, grey plover, knot)

Increased vessel traffic

- Rockabill to Dalkey Island SAC (harbour porpoise)
- Lambay Island SAC (grey seal, harbour seal)
- North Bull Island SPA (light-bellied brent goose, shelduck, teal, pintail, bar-tailed, godwit, curlew, redshank, turnstone, black-headed gull, dunlin, black-tailed godwit, sanderling, shoveler, oystercatcher, golden plover, grey plover, knot)
- South Dublin Bay and River Tolka Estuary SPA (light-bellied brent goose, oystercatcher, ringed plover, grey plover, dunlin, arctic tern, bar-tailed, godwit, redshank, knot, black-headed, gull, roseate tern, common tern, Arctic tern, sanderling)

Figure 3.1: Sites identified for Appropriate Assessment



3.2 Assessment of impact on European sites

3.2.1 Rockabill to Dalkey Island SAC

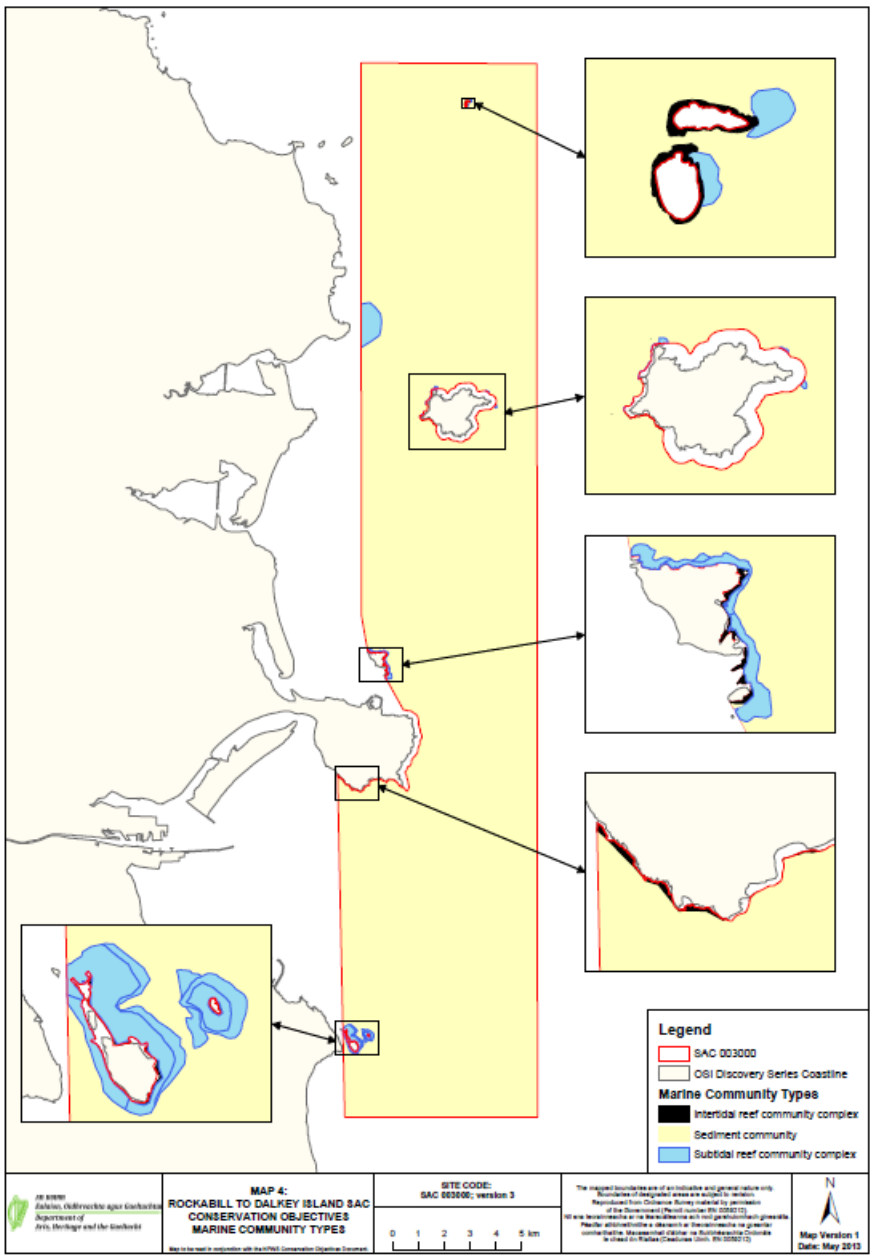
Conservation objectives, attributes and targets
The Conservation Objectives to maintain the favourable conservation condition of reefs within the Rockabill to Dalkey Island SAC are defined by the following list of attributes and targets (NPWS 2013a). Relevant technical clarifications with respect to the targets from the supporting document (NPWS 2013b) are also provided:

Table 3.1: Rockabill to Dalkey Island SAC – Attributes and targets for Reefs

Attribute	Measure	Target (relevant technical clarification in bullets)
Habitat area	Hectares	The permanent area is stable or increasing, subject to natural processes
		• The area of this habitat represents the minimum estimated area of reef at this site and underestimates the actual area due to the presence of vertical rock wall and steeply sloping rock within the reef habitat.
		• This target refers to activities or operations that propose to permanently remove habitat from the site, thereby reducing the permanent amount of habitat area. It does not refer to long or short term disturbance of the biology of a site
Habitat distribution	Occurrence	Distribution is stable or increasing, subject to natural processes
		• The likely distribution of reef habitat in this SAC is indicated in Figure 3.1 below.
		• This target refers to activities or operations that propose to permanently remove reef habitat, thus reducing the range over which this habitat occurs within the site. It does not refer to long or short term disturbance of the biology of reef habitats.
Community structure	Biological composition	Conserve the following community types in a natural condition: Intertidal reef community complex; and Subtidal reef community complex
		• An interpolation of their likely distribution is provided in Figure 3.1 below
		• The estimated areas of the communities within the Reefs habitat given below are based on spatial interpolation and therefore should be considered indicative. In addition, as this habitat contains areas of vertical rock wall and steeply sloping rock, the mapped community extents will be underestimated: - Intertidal reef community complex – 10ha - Subtidal reef community complex - 172ha
		• This target relates to the structure and function of the reef and therefore it is of relevance to those activities that may cause disturbance to the ecology of the habitat.
		• Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which point an inter-Departmental management review is recommended prior to further licensing of such activities.
		• Proposed activities or operations that cause significant disturbance to communities but may not necessarily

Attribute	Measure	Target (relevant technical clarification in bullets)
		represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site.

Figure 3.2: Extent and distribution of reef community types in Rockabill to Dalkey Island SAC



Source: NPWS (2013a)

The Conservation Objectives to maintain the favourable conservation condition of harbour porpoise within the Rockabill to Dalkey Island SAC, are defined by the following list of

attributes and targets. Relevant technical clarifications with respect to the targets from the supporting document (NPWS 2013b) are also provided:

Table 3.2: Rockabill to Dalkey Island SAC – Attributes and targets for Harbour porpoise

Attribute	Measure	Target (relevant technical clarification in bullets)
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use
		• This target may be considered relevant to proposed activities or operations that will result in the permanent exclusion of harbour porpoise from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein.
		• It does not refer to short-term or temporary restriction of access or range.
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the harbour porpoise community at the site
		• Proposed activities or operations should not introduce man-made energy (e.g. aerial or underwater noise, light or thermal energy) at levels that could result in a significant negative impact on individuals and/or the community of harbour porpoise within the site. This refers to the aquatic habitats used by the species in addition to important natural behaviours during the species annual cycle
		• This target also relates to proposed activities or operations that may result in the deterioration of key resources (e.g. water quality, feeding, etc) upon which harbour porpoises depend. In the absence of complete knowledge on the species ecological requirements in this site, such considerations should be assessed where appropriate on a case-by-case basis.
		• Proposed activities or operations should not cause death or injury to individuals to an extent that may ultimately affect the harbour porpoise community at the site.

Potential impacts from proposed site investigations

Direct disturbance of habitats

A proportion of the proposed export cable corridor overlaps with the southern part of the Rockabill to Dalkey Island SAC (see Figure 3.1).

Given the nature of the proposed site investigations, they will not permanently remove reef habitat from the site and therefore the conservation objective attributes with respect to habitat area and distribution (Table 3.1) are not relevant.

NPWS (2013b) indicates that the intertidal reef community complex is associated with the following substrates: *"flat and sloping bedrock; around Rockabill cobbles and boulders occur on bedrock. Vertical cliff faces are found on the north and northeast shores of Ireland's Eye; steep shorelines are a feature of Rockabill, Muglins and the eastern shore of Dalkey Island.*" The substrates of the subtidal reef community complex "*ranges from that of flat and sloping bedrock, to bedrock with boulders and also a mosaic of cobbles and boulders. Vertical rock walls occur on the north and east of Ireland's Eye and to the east of Lambay Island where they give way to sloping bedrock at c.20m. In the northern reaches of the site, at Rockabill and Ireland's Eye, areas of both sediment scouring and a thin veneer of silt were observed on*

the reefs; the veneer of silt was also recorded at Lambay Island. In the south of the site, strong currents were experienced in the channel between Dalkey Island and the Muglins."

With respect to the community structure attribute of the reefs habitat, the proposed site investigations could cause disturbance to the ecology of the habitat. Although it is noted that these hard substrate areas are not suitable for some of the proposed geotechnical survey techniques (e.g. vibrocorers, CPTs) and would be avoided (see Section 3.3.2).

The applicant indicated that the extent of the known geogenic reefs within the SAC have been mapped and are presented within the Conservation Objectives supporting document (NPWS 2013b, see Figure 3.1 above). No relevant reef community types were identified within the area of overlap between the export cable corridor and the SAC. Therefore, there will be no significant disturbance (continuous or ongoing) of the communities and the threshold of 15% of the interpolated area of each community type (see Table 3.1) will not be exceeded.

However, the applicant could not discount that the reef feature may exist elsewhere within the survey area and has not yet been identified. Noting from the site synopsis[7] that *"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."* Therefore, with the implementation of mitigation measures (see Section 3.3.2), the potential for direct disturbance of the reef qualifying interest will be minimised and there will be no adverse effects on the integrity of the site.

The site synopsis indicated that the 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.

With respect to the proposed site investigations causing deterioration of these key resources to the harbour porpoise (a target with respect to the disturbance attribute, Table 3.2), the applicant indicated in Table 1.2 (in response to public submission 9), that all the proposed geotechnical survey techniques were of small diameter and sampling locations were within a highly dynamic area with strong sea currents. The voids created by the borehole drill and vibrocorers (254mm and 150mm diameter respectively) will fill naturally immediately following the removal of the equipment, leaving only a minor impression on the seafloor, which will fill over subsequent tidal cycles. CPTs do not remove any material and the hole created by the penetration of the cone (up to 40mm diameter), will infill almost instantly upon removal of the equipment.

Similarly, the nearby Kish and Bray Banks may also offer suitable supporting habitat for the harbour porpoise qualifying interest. In response to public submission 5, the applicant calculated that the combined footprint from all subtidal sampling techniques, including the footprint of the jack-up vessel and deployment frame, and buoy deployment across the entire Foreshore Licence area as 4,311m^2 (0.004km^2). Only a proportion of these activities are planned to take place on the Kish and Bray Banks, however even assuming that all activities occurred on the banks, the footprint would amount to 0.013% of the total area of the banks (the applicant took the total area of the Kish and Bray Banks to be the area within the 20m contour - 35km^2). The fine sand and gravel sediments which cover the banks are highly mobile and regularly disturbed by natural processes. A hydrodynamic study of the banks (Hydo Environmental Limited 2012) confirmed that tidal flow velocities and their corresponding bed shear stresses were high and of sufficient magnitude to be capable of mobilising a coarse to very coarse sand and that maximum computed shear velocities along the crest of the sand bar and to the south were sufficient to mobilise a fine gravel. It was concluded that the upper

[7] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY003000.pdf

sand layer within the banks was mobile and capable of successive erosion and deposition taking place over spring and neap tidal cycles. Any additional sediment disturbed by the proposed site investigations works will therefore be minimal compared to that mobilised and deposited as a result of the natural tidal cycle.

Therefore, significant deterioration of key resources to the harbour porpoise which may include direct disturbance to sand bank habitats (both within and outside the site), as a result of the proposed site investigations are not expected. Therefore, there will be no adverse effects on the integrity of the site.

Underwater noise
A tabulation of noise sources for the geophysical aspects of the survey is provided in Table 2.1, including frequency ranges and sound pressure levels. The applicant noted that the frequency ranges of the multi-beam echosounder (MBES) (190-420kHz) and side-scan sonar (SSS) (300-900kHz) equipment fall outside of the hearing threshold of all marine mammal species (see Table 3.3) and that the proposed magnetometer is passive, and produces no noise.

The applicant noted the lower frequency nature of the sub-bottom profiler (SBP), indicating this to be 85kHz-115kHz, which is within the estimated hearing range of the harbour porpoise qualifying interest (275Hz-160kHz, peak sensitivity 105kHz) (Southall *et al*. 2019). The Ultra High Resolution Seismic (UHRS) (0.4-6kHz) and USBL (21-31kHz) systems are also within the harbour porpoise hearing range.

Section 4.2 of the applicant's Annex E Report to inform AA Screening indicated that the sub bottom profiler (SBP) will be required throughout the offshore export cable corridors (ECC) and array area with different sub-bottom profiling equipment likely to be required in each area. Across the offshore ECC shallow investigation would be sufficient, which is usually achieved with a hull mounted pinger or chirp operating in single channel mode. In the array area acquisition of information to greater depths was needed for turbine location-specific foundation design. Ultra-high resolution multi-channel seismic (UHRS) technology such as a sparker or boomer system would likely be used to provide good quality data suitable for engineering works in the shallow (<80 m) subsurface.

In response to an RFI (May 2020), the applicant indicated that following engagement with the likely survey contractor, a parametric SBP (pinger) was intended to be used for the geophysical survey; the Innomar Medium SES-2000 being indicative of this type of SBP which has a maximum source level >247 dB re 1 µPa @ 1m (figure different to that provided by the applicant (225) but based on technical datasheet[8] and 85-115 kHz (see Table 2.1). It is noted that the mechanism by which these devices generate the low-frequency signal of interest (secondary) requires initial emission of a high amplitude signal (primary). However, the high frequency of this initial signal and its associated narrow beam width (~2 degrees) will limit its horizontal propagation.

In response to public submission 18 (Table 1.2), the applicant indicated that the screening assessment presented in Annex E was based on the use of a sparker system, which had the greatest impact ranges of the types of SBP then under consideration. The assessment concluded that animals may be disturbed within a few hundred metres of the sound source. The applicant concluded that whilst the source level of the parametric pinger system was higher than that of the sparker systems (see Table 2.1), the narrow beamwidth of the former

[8] https://www.str-subsea.com/uploads/Innomar-SES-2000-medium-100-Sub-Bottom-Profiler-System.pdf

results in significantly smaller impact ranges, with sound levels reducing to 120 dB SPLrms within a few metres of the sound source (CSA 2020).

In the May 2020 RFI response, the applicant also indicated that a USBL system was likely to be used. This consists of a multi-element transducer mounted on the hull of the vessel and a transponder attached to the towed equipment (e.g. side-scan sonar). The hull-mounted transducer emits an acoustic pulse that is detected by the transponder, which replies with its own acoustic pulse, and its position is subsequently determined from the range and angle of the pulse as received by the transducer. USBL equipment is widely used by offshore commercial and research vessels where positional accuracy of towed survey equipment is critical. The emitted pulses will be short pulse width 'pings', approximately in the range of 20-35kHz and with a source level of up to ~200dB re 1µPa @1m (peak) (see Table 2.1). It is noted that while independently-measured sound fields are not available for USBL, their nominal source levels and central operating frequencies are such that emitted sounds fields are likely to be very small and of limited/no audibility above that of the concurrently operating survey equipment and vessel.

Public submission 18 noted that the noise range of dynamic positioning (DP) vessels was within the audible range of the harbour porpoise and no assessment of the risk, nor any mitigation measures were provided. In response the applicant indicated that the noise associated with large shipping vessels was widely considered unlikely to cause physical trauma to marine mammals, but could make preferred habitats less attractive as a result of disturbance (Erbe *et al*. 2019). A study by Beck *et al.* (2013) noted that marine mammals frequenting the Dublin Port shipping channel will be well accustomed to shipping noise. The applicant indicated that ambient underwater noise in Dublin Bay has been estimated at around 113 db (Beck *et al*. 2013, McKeown 2014). The applicant concluded that given the existing shipping traffic within Dublin Bay and that the noise associated with the survey vessels will be short term, temporary and intermittent and that the proposed works will not result in a significant increase in vessel traffic in the area, no significant disturbance or displacement effects were expected for any marine mammal species.

It is further noted that underwater noise emitted by vessels <50m tends to have a source level of 160-175 dB re 1µPa@1m, and with greater sound energy in relatively higher frequency (above 1kHz) when compared to large ships; support and supply vessels (50-100m) are expected to have source levels in the range 165-180dB re 1µPa@1m range and with most energy in lower frequencies (OSPAR 2009). The applicant noted that the geotechnical and geophysical survey vessels are typically 70m in length with an operational speed of approximately 5 knots, smaller vessels being required to operate within the nearshore.

It is noted that cavitational noise commonly arises at speeds between 8 and 12 knots and grows in amplitude with increasing speed; its frequency spectrum is broad with dominant frequencies above a few hundred Hz. In addition to vessels in transit, cavitational noise is important when vessels are operating under high load conditions (high thrust) and when DP systems are in use. For example, the use of thrusters for DP has been reported to result in increased sound generation of ~10dB compared to the same vessel in transit: measurements at 600m range to an offshore supply vessel of 79m length recorded broadband SPL (18-3,000Hz) of 148dB re 1µPa (root-mean-squared, rms) when in DP mode, compared to 135.5dB re 1µPa rms when in transit at a speed of 10 knots (Rutenko & Ushchipovskii 2015).

Though much larger than the type of jack-up vessels that could be used in the survey, underwater noise associated with a jack-up rig of the type used in the offshore oil and gas industry is of a very similar dominant frequency range as that from large merchant vessels, albeit of lower average intensity. Measurements alongside a three-legged jack-up rig drilling in shallow water on the Dogger Bank showed that sound levels were in the order of $L_{p,rms}$

120dB re 1µPa broadband with most energy between 2-1,200Hz; sound levels dropped off rapidly above 8kHz and were in the region of 15-20dB quieter during operations other than drilling (Todd & White 2012). It was noted that, at lower frequencies, the rig was considerably quieter than its associated support vessels (Todd & White 2012). Measurements of noise generated by shallow drilling in water depths of 7-13m through sand and mudstone produced source levels of 142-145 dB re 1 µPa rms @ 1 m (30-2,000Hz) (Erbe & McPherson 2017).

The harbour porpoise has the lowest threshold criteria for the onset of Permanent Threshold Shift (PTS) for impulsive sources at 202dB re 1µPa. Given the source characteristics and evidence of propagation presented above, the potential sources in the planned survey will not result in received sound levels exceeding this threshold beyond more than a few metres from the source, or are not within the estimated hearing range of harbour porpoise. The parametric SBP (Innomar SES-2000) which is characterised by a narrower beam width (~2°) than other sources, resulting in a very small area beneath this source being ensonified to the extent that injury to harbour porpoise may occur. Sources of non-impulsive noise including vessel movements may achieve sound pressure levels of *ca*.180dB re 1µPa; however, received levels within the general vicinity of operations (i.e. hundreds of metres to a few kilometres) are likely to be of the order of 120-160dB re 1µPa.

Underwater noise from the survey vessel itself, the drilling of the boreholes and related operations could potentially cause behavioural disturbance of harbour porpoise present in the area. Reported responses to vessels include avoidance, changes in swimming speed, direction and surfacing patterns, alteration of the intensity and frequency of calls (review Erbe *et al*. 2019). Harbour porpoises and minke whales have been shown to respond to survey vessels by moving away from them, while some other species, such as common dolphins, have shown attraction (Palka & Hammond 2001). While there is potential for some behavioural disturbance of harbour porpoise in response to survey vessel noise, the area of potential disturbance will be highly localised (i.e. within a few hundred metres radius), in an open sea habitat (i.e. with movement of animals not restricted by geographic features such as a shoreline), transient and of short overall duration. The increase in underwater noise from the survey vessel activities, relative to existing levels in the wider area from other shipping and fisheries, is expected to be negligible.

There have been numerous reviews of the effects of anthropogenic sound on fish (e.g. Popper *et al*. 2014, Slabbekoorn *et al*. 2019). Of relevance is Carroll *et al*. (2017), who present a systematic and critical review of scientific studies investigating the impacts of low-frequency sound on marine fish, with a focus on seismic surveys. Of studies investigating adult/juvenile fish mortality and physical injury, the majority showed no effects, some reported temporary hearing loss and one observed long-term hearing damage; none showed mortality. Of six studies investigating mortality of fish eggs or larvae, none reported mortality at realistic known exposure levels. Behavioural effects were the most studied aspect, numbering 15 studies, with most being laboratory or caged field experiments. Startle/alarm responses, avoidance of the sound source or changes in vertical or horizontal distribution were widely reported, while several studies reported no significant response or conflicting results. Observed responses were temporary, and fish returned to pre-exposure behaviour typically within less than an hour of the last exposure. The majority of studies of effects on catch rates or abundance report no effect or conflicting results, although in some cases reduced trawl and/or longline catch occurred; where effects have been reported, these are most likely due to changes in fish distribution and behaviour, such as vertical movements.

Given the reported hearing ranges of fish, it is anthropogenic sound sources generating high amplitude low-frequency noise (i.e. seismic airgun surveys, along with percussive pile-driving and explosions) which are of primary concern to fish. Studies which have experimentally tested the effects of other fairly low-frequency acoustic survey sources (i.e. SBPs) on fish are

lacking. Pinger and chirp SBPs show limited overlap only among fish species which primarily detect sound pressure, such as herring and shads, while the high frequency signals generated by side-scan sonar, echosounders and USBL are above the hearing range of fish. Sandeels which may be a prey species of harbour porpoise, lack a swim bladder and are likely to be sensitive only to sound particle motion rather than sound pressure (Popper *et al*. 2014). There is no evidence of mortality or potential mortal injury to fish from ship noise (Popper *et al*. 2014).

The applicant concluded that given that any noise impacts on cetaceans and their prey would be short term, temporary and intermittent and the best practice mitigation measures in relation to geophysical and geotechnical surveys as specified in DAHG (2014) (see Section 3.3.1) or other updated guidance as agreed with NPWS, will be followed at all times, the potential for disturbance to the harbour porpoise qualifying interest will be minimised and there will be no adverse effects on the integrity of the site.

Therefore, with respect to the harbour porpoise conservation objectives (Table 3.2), the proposed site investigations are, based on the evidence provided above, unlikely to introduce man-made energy (e.g. aerial or underwater noise, light or thermal energy) at levels that could result in a significant negative impact on individuals and/or the community of harbour porpoise within the site. It is considered that the applicant correctly concludes that given any noise impacts on cetaceans and their prey would be short term, temporary and intermittent and the best practice mitigation measures in relation to geophysical and geotechnical surveys as specified in DAHG (2014) (see Section 3.3.1) or other updated guidance as agreed with NPWS, will be followed at all times, the potential for disturbance to the harbour porpoise qualifying interest will be minimised and there will be no adverse effects on the integrity of the site.

The proposed site investigations are unlikely to cause death or injury to individuals to an extent that may ultimately affect the harbour porpoise community at the site (Table 3.2). The risk of injury to harbour porpoise qualifying interests from these sources is considered to be very low and only within the immediate vicinity of the survey vessel or SBP operation, and with the implementation of the above mitigation measures (Section 3.3.1), there will be no adverse effects on the integrity of the site.

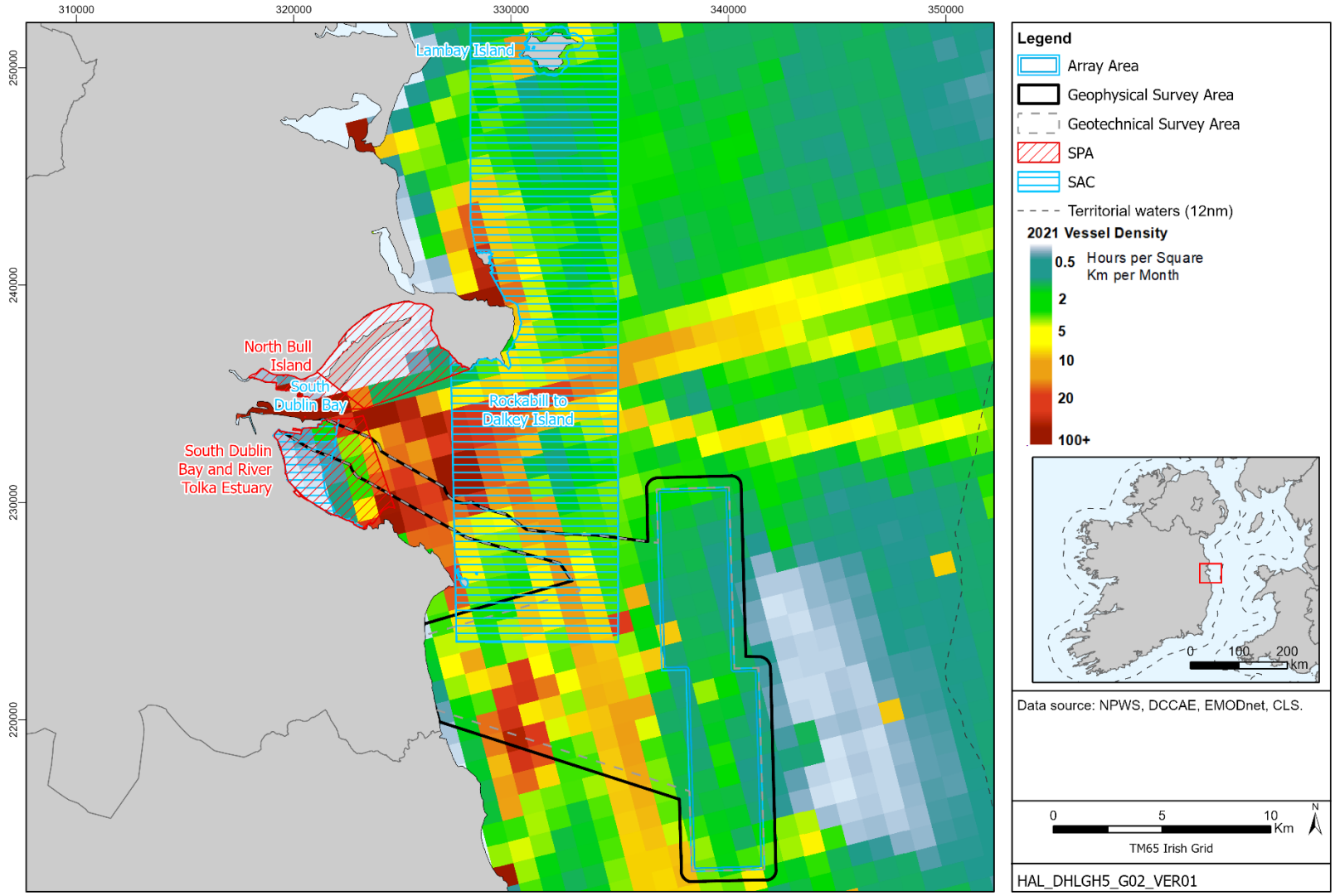
Increased vessel traffic

Vessel movements have the potential to result in death or injury in marine mammals as a result of collision. The key navigational features in the area are considered to be the shallow banks within the site (Kish and Bray) which dictate vessel routeing in the area. Given the shallow water depths associated with the Kish and Bray Banks, larger commercial vessels currently avoid the area, with only smaller fishing or recreational vessels transiting through the proposed site.

While commercial traffic does currently avoid the banks, the surrounding area has a number of high density vessel routes passing to the west and north of the site, which are in the majority associated with transiting into and out of Dublin Bay (and associated ports and harbours) (Figure 3.3). This includes regular passenger and freight ferry routes, fishing (actively fishing and in transit) and recreational traffic.

Given survey vessels will be operated at slow speeds and/or be stationary for a large portion of the time and the proposed works will not result in a significant increase in vessel traffic in the area, the applicant determined that there will be no significant change to the existing level of collision risk to marine mammals. Therefore, the proposed site investigations will not cause death or injury to individuals to an extent that may ultimately affect the harbour porpoise community at the site (Table 3.2), and there will be no adverse effects on the integrity of the site.

Figure 3.3: Vessel density in the area of the proposed site investigations



3.2.2 South Dublin SAC

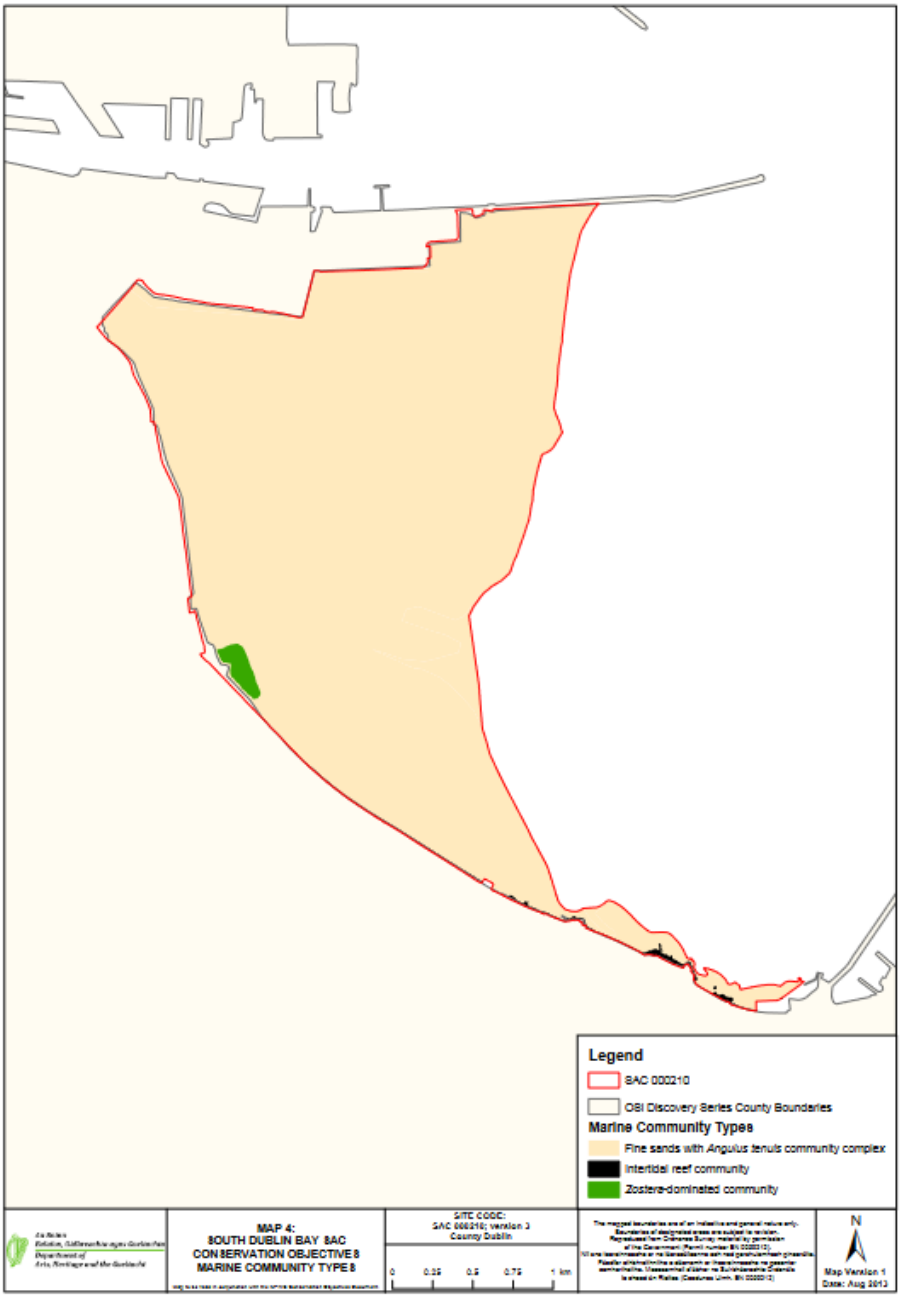
Conservation objectives, attributes and targets
The applicant's Annex F NIS incorrectly stated that site specific objectives did not exist for the Mudflats and sandflats not covered by seawater at low tide qualifying interest. The Conservation Objectives to maintain the favourable conservation condition of this habitat within the South Dublin SAC are defined by the following list of attributes and targets (NPWS 2013c), with relevant technical clarifications (NPWS 2013d) also provided:

Table 3.3: South Dublin SAC – Attributes and targets for mudflats and sandflats not covered by seawater at low tide

Attribute	Measure	Target (relevant technical clarification in bullets)
Habitat area	Hectares	The permanent area is stable or increasing, subject to natural processes
		• This target refers to activities or operations that propose to permanently remove habitat from a site, thereby reducing the permanent amount of habitat area. It does not refer to long or short term disturbance of the biology of a site
Community extent	Hectares	Maintain the extent of the *Zostera*-dominated community, subject to natural processes
		• A *Zostera*-dominated community is considered to be a keystone community that is of considerable importance to the overall ecology and biodiversity of a habitat by virtue of its physical complexity, e.g. it serves as important nursery grounds for commercial and non-commercial species.
		• Any significant anthropogenic disturbance to the extent of these communities should be avoided.
		• An interpolation of the likely distribution of these communities is provided in Figure 3.4 below. The area given below is based on spatial interpolation and therefore should be considered indicative: - *Zostera*-dominated community – 4ha
Community structure: *Zostera* density	Shoots/m^2	Conserve the high quality of the *Zostera*-dominated community, subject to natural processes
		• It is important to ensure the quality as well as the extent of *Zostera*-dominated communities is conserved. For example, shoot density can provide an indication of the habitat quality as well as giving information on the habitat complexity and refuge capability; all important components in maintaining the structural and functional integrity of the habitat.
Community distribution	Hectares	Conserve the following community type in a natural condition: Fine sands with *Angulus tenuis* community complex.
		• An interpolation of their likely distribution is provided in Figure 3.4 below.
		• The estimated areas of these community types within the Mudflats and sandflats not covered by seawater at low tide habitat given below are based on spatial interpolation and therefore should be considered indicative - Fine sands with *Angulus tenuis* community complex – 716ha
		• Significant continuous or ongoing disturbance of communities should not exceed an approximate area of 15% of the interpolated area of each community type, at which

Attribute	Measure	Target (relevant technical clarification in bullets)
		point an inter-Departmental management review is recommended prior to further licensing of such activities
		• Proposed activities or operations that cause significant disturbance to communities but may not necessarily represent a continuous or ongoing source of disturbance over time and space may be assessed in a context-specific manner giving due consideration to the proposed nature and scale of activities during the reporting cycle and the particular resilience of the receiving habitat in combination with other activities within the designated site

Figure 3.4: Distribution of community types in South Dublin Bay SAC



As noted by the applicant, site specific objectives do not exist for the '*Salicornia* and other annuals colonising mud and sand', 'Atlantic salt meadows (Glauco-Puccinellietalia maritimae)' and 'Mediterranean salt meadows (Juncetalia maritimi)' communities. The generic targets have therefore been considered in this case, these are that the favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, are stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- The conservation status of its typical species is favourable.

Potential impacts from proposed site investigations

Direct disturbance of habitats

A small proportion of the proposed survey area overlaps with the SAC (see Figure 3.1). In the process of removing the vibrocores, boreholes, CPTs and undertaking the benthic sampling and cores, a small area of the sediment surface within the qualifying interest for mudflats and sandflats not covered by seawater at all times will be removed. There will also be a small area of seabed disturbance within the footprint of the steel frame. The proposed refraction survey will be non-intrusive and have no contact with the seafloor.

The total area of seabed removed and the area of physical disturbance would be highly localised, especially when set within the context of the extent of the fine sands with *Angulus tenuis* community complex (Figure 3.4), and physical processes present within the site. Physical disturbance to the community complex would be short term, temporary and over a negligible footprint in the context of the extent of the community. For example, in response to public submission 5 (see Table 1.2), the applicant calculated that the combined footprint from all subtidal sampling techniques, including the footprint of the jack-up vessel and deployment frame, and buoy deployment across the entire Foreshore Licence area as 4,311m^2 (0.004km^2). If all of this sampling was to take place within the fine sands with *Angulus tenuis* community complex, it would represent only 0.006% of the interpolated area and therefore not exceed the 15% threshold associated with the community distribution attribute (Table 3.3 above). Significant disturbance of the fine sands with *Angulus tenuis* community complex is not therefore expected and there will be no adverse effects on the integrity of the site.

Based on the geotechnical survey area outlined in Figure 3.1 above, the limited physical disturbance of the seabed that will occur as a result of the survey (see above) will not overlap with the location of the *Zostera*-dominated community (Figure 3.4), and therefore will not impact on the extent, structure and distribution of this community (see Table 3.3).

Access to the beach by tracked machines could have potential to impact the designated sensitive habitats of *Salicornia* and other annuals colonising mud and sand, 'Atlantic salt meadows (Glauco-Puccinellietalia maritimae) and 'Mediterranean salt meadows (Juncetalia maritimi) communities. Physical disturbance to these more sensitive habitats and communities would be short term and temporary.

With the implementation of mitigation measures (see Sections 3.3.3 and 3.3.4), the potential for direct disturbance of the Annex I habitat qualifying interests will be minimised and there will be no adverse effects on the integrity of the site.

3.2.3 Lambay Island SAC

Conservation objectives, attributes and targets

The Conservation Objectives to maintain the favourable conservation condition of the grey seal and harbour seal qualifying interests are defined by the following attributes and targets (NPWS 2013e), with relevant technical clarifications (NPWS 2013f) also provided:

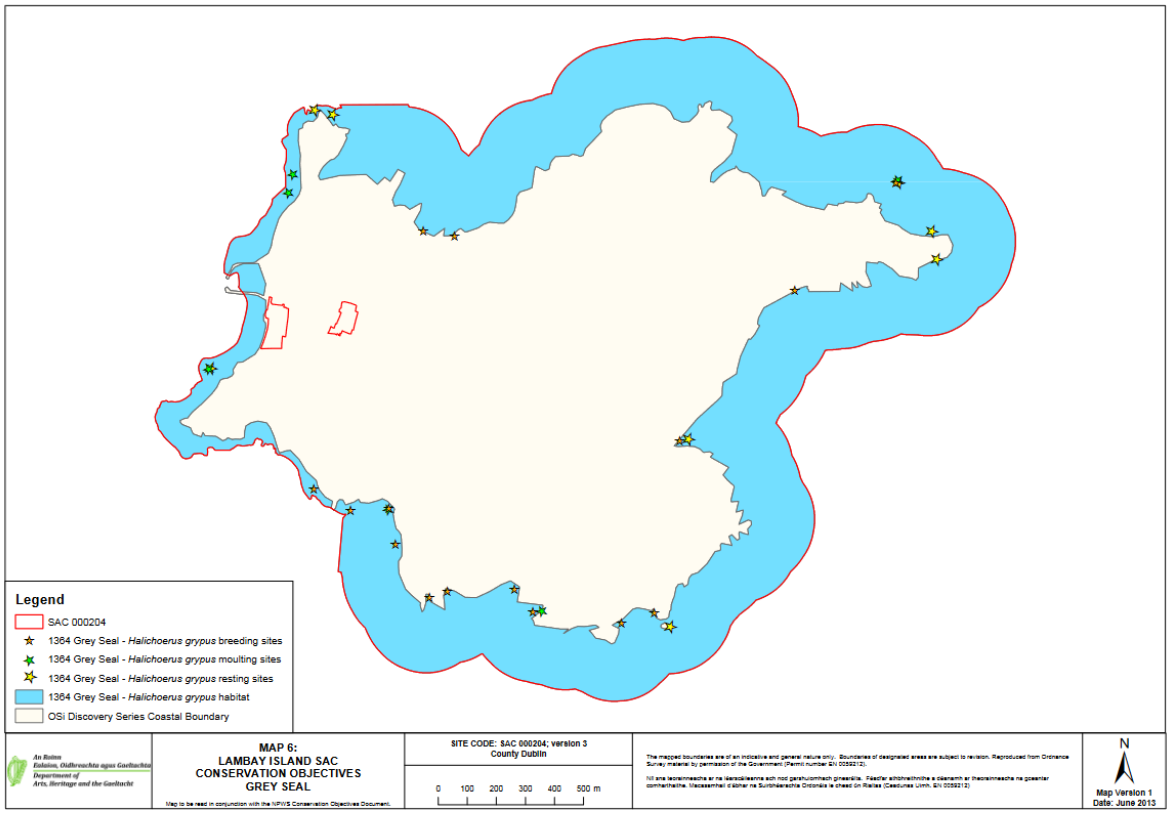
Table 3.4: Lambay Island SAC – Attributes and targets for grey and harbour seal

Attribute	Measure	Target (relevant technical clarification in bullets)
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use
		• This target may be considered relevant to proposed activities or operations that will result in the permanent exclusion of grey or harbour seal from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein.
		• It does not refer to short-term or temporary restriction of access or range.
Breeding behaviour	Breeding sites	The breeding sites should be maintained in a natural condition. See Figure 3.5.
		• This target is relevant to proposed activities or operations that will result in significant interference with or disturbance of (a) breeding behaviour by grey or harbour seal within the site and/or (b) aquatic/ terrestrial/intertidal habitat used during the annual breeding season
		• Operations or activities that cause displacement of individuals from a breeding site or alteration of natural breeding behaviour, and that may result in higher mortality or reduced reproductive success, would be regarded as significant and should therefore be avoided.
Moulting behaviour	Moult haul-out sites	The moult haul-out sites should be maintained in a natural condition. See Figure 3.5.
		• This target is relevant to proposed activities or operations that will result in significant interference with or disturbance of (a) moulting behaviour by grey or harbour seal within the site and/or (b) aquatic/ terrestrial/intertidal habitat used during the annual moult.
		• Operations or activities that cause displacement of individuals from a moult haul-out site or alteration of natural moulting behaviour to an extent that may ultimately interfere with key ecological functions would be regarded as significant and should therefore be avoided.
Resting behaviour	Resting haul-out sites	The resting haul-out sites should be maintained in a natural condition. See Figure 3.5.
		• This target is relevant to proposed activities or operations that will result in significant interference with or disturbance of (a) resting behaviour by grey or harbour seal within the site and/or (b) aquatic/terrestrial/intertidal habitat used for resting.
		• Operations or activities that cause displacement of individuals from a resting haul-out site to an extent that may ultimately interfere with key ecological functions would be regarded as significant and should therefore be avoided
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey or harbour seal populations at the site

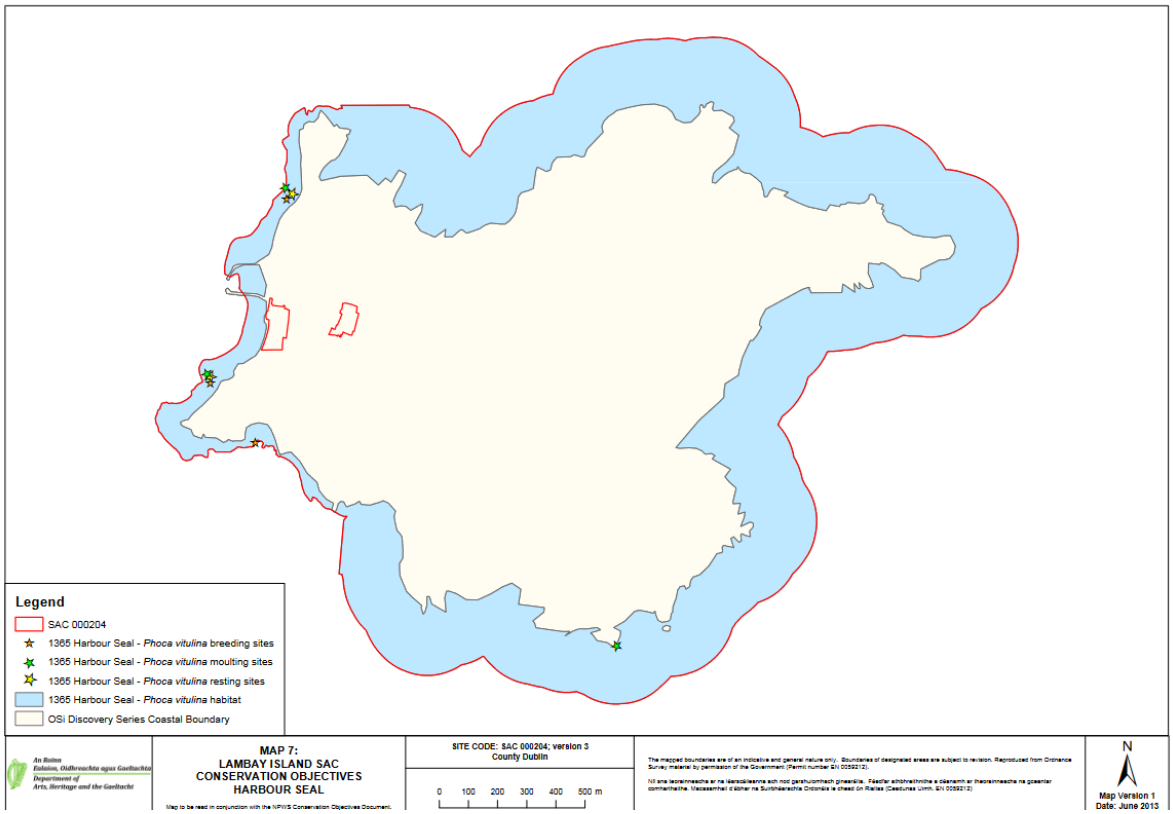
Attribute	Measure	Target (relevant technical clarification in bullets)
		• Proposed activities or operations should not introduce man-made energy (e.g. aerial or underwater noise, light or thermal energy) at levels that could result in a significant negative impact on individuals and/or the population of grey or harbour seal within the site. This refers to both the aquatic and terrestrial/intertidal habitats used by the species in addition to important natural behaviours during the species annual cycle.
		• This target also relates to proposed activities or operations that may result in the deterioration of key resources (e.g. water quality, feeding, etc) upon which grey or harbour seals depend. In the absence of complete knowledge on the species ecological requirements in this site, such considerations should be assessed where appropriate on a case-by-case basis.
		• Proposed activities or operations should not cause death or injury to individuals to an extent that may ultimately affect the grey or harbour seal population at the site.

Figure 3.5: Lambay Island SAC – Breeding, moulting, resting sites and habitat

a) Grey seal



b) Harbour seal



Source: NPWS (2013e)

Lambay supports the principal breeding colony of grey seal on the east coast of Ireland, numbering 196-252 seals, across all ages. It also contains regionally significant numbers of harbour seal, of which up to 47 individuals have been counted at the site. Grey seals and harbour seals occur year-round and the island's intertidal shorelines, coves and caves are used by resting and moulting seals (Site synposis[9]).

Potential impacts from proposed site investigations

The proposed survey area is located 18.4km from the SAC (Figure 3.1). The site was screened in based upon the extension of the Dublin Array boundary to include ecological surveys, including the deployment of SAM devices to the north of the project boundary and the potential for grey and harbour species to forage in the area. The geotechnical and geophysical survey activities will not overlap with the breeding and haul out sites within the SAC (as indicated on Figure 3.5), and no pathway exists to disturb seals on land or access to suitable habitat, breeding, resting or moulting behaviour.

Increased vessel traffic

The potential for disturbance to the seal qualifying interests is limited to the presence of vessels for the proposed works and deployment of buoys (see consideration of increased vessel traffic for Rockabill to Dalkey Island SAC above (Section 3.2.1). Given survey vessels will be operated at slow speeds and/or be stationary for a large portion of the time and the proposed works will not result in a significant increase in vessel traffic in the area, the applicant determined that there will be no significant change to the existing level of collision risk to marine mammals. Therefore, the proposed site investigations will not cause death or injury to

[9] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000204.pdf

individuals to an extent that may ultimately affect the grey or harbour seal populations at the site, and there will be no adverse effects on the integrity of the site.

Underwater noise
The proposed geophysical survey has the potential to be within the hearing threshold of grey and harbour seals as the parametric SBP (maximum source level of >247 dB re 1 µPa @ 1m, 85kHz-115kHz) may overlap with the estimated hearing range of phocids (50Hz-86kHz, peak sensitivity 13kHz, Southall *et al*. 2019). The threshold criteria for the onset of Permanent Threshold Shift (PTS) for impulsive sources for phocid seals in water (which includes grey and harbour seal) was estimated at 218 dB re 1µPa (Southall *et al.* 2019). As noted in Section 3.2.1, the mechanism by which these devices generate the low-frequency signal of interest (secondary) requires initial emission of a high amplitude signal (primary). However, the high frequency of this initial signal and its associated narrow beam width (~2 degrees) will limit its horizontal propagation. It is also noted that the primary signal (85-115kHz) is at the very upper limit of seal hearing. Therefore, the potential sources in the planned survey will not result in received sound levels exceeding the PTS threshold for grey and harbour seals beyond more than a few metres from the source.

The applicant concluded that given that any noise impacts on seals and their prey (see Section 3.2.1 for consideration of impacts to fish) would be short term, temporary and intermittent and the best practice measures in relation to geophysical and geotechnical surveys as specified in the DAHG Guidance (2014) (see Section 3.3.1) or other updated guidance as agreed with NPWS will be followed at all times, the potential for disturbance to the species will be minimised and there will be no adverse effects on the integrity of the site.

3.2.4 South Dublin Bay and River Tolka Estuary SPA

The applicant indicated that the primary SCIs of the South Dublin Bay and River Tolka Estuary SPA are related to over-wintering and passage birds. The period September – March covers the main wintering period when many species occur in their largest concentrations, with the autumn passage period occurring between July – September.

Based on the applicant's screening assessment, the Screening for AA (Hartley Anderson 2022) screened in all of the SCIs for likely significant effects associated with direct disturbance, increased vessel traffic and underwater noise resulting from the proposed site investigations.

However, the proposed site investigations within South Dublin Bay and River Tolka SPA are anticipated to be conducted outside of the over-wintering season, when the over-wintering SCI species are likely to be absent. Temporal overlap may occur with the breeding and passage period for tern species designated within the SPA.

Conservation objectives, attributes and targets
The Conservation Objectives to maintain the favourable conservation condition of the passage roseate, common and Arctic tern SCIs are defined by the following attributes and targets (NPWS 2015a) (Table 3.5). Other attributes and targets specific to the breeding common tern SCI are described in Table 3.6:

Table 3.5: South Dublin Bay and River Tolka SPA – Attributes and targets for passage roseate, common and Arctic tern SCI

Attribute	Measure	Target	Relevant notes
Passage population: individuals	Number	No significant decline	Evening surveys of roosting terns in the site confirm the conservation importance of the south Dublin Bay area during the post-breeding/pre-migration period. Up

Attribute	Measure	Target	Relevant notes
			to 11,700, 9,025 and 8,020 terns were recorded in 2006, 2007 and 2010 respectively. Given the counting conditions (i.e. low light levels and long distance recording) it was rarely possible to identify the terns to species level but the majority of the birds appear to have been common terns, with smaller numbers of Arctic and roseate terns (sandwich, little and black terns were also recorded) (Merne *et al*. 2008; Merne 2010). **Roseate**: At least 645 have been recorded here during the aforementioned survey years. **Arctic**: At least 200 have been recorded here during the aforementioned survey years. **Common**: At least 4,887 common tern have been recorded here during the aforementioned survey years These estimates do not factor in turnover rates and therefore the total number of terns using this SPA may be significantly higher.
Distribution: roosting areas	Number; location; area (hectares)	No significant decline	Merne *et al.* (2008) describe the main roosting area as the exposed sand banks in south Dublin Bay primarily between the Martello Towers at Sandymount and Williamstown. Terns have been occasionally recorded outside of this area on adjacent sandflats extending to Irishtown/South Bull Wall and to Blackrock but these birds eventually join the birds roosting in the main area (Merne *et al*. 2008).
Prey biomass available	Kilogrammes	No significant decline	Terns associated with the roost are thought to feed during the day in the wider Dublin Bay area but direct survey evidence is incomplete. Evening observations of terns arriving to the roosting area indicated that most flew in from an easterly and southeasterly direction leading the authors to suggest they were feeding in the shallow waters of the Kish/Bray and Burford Banks (Merne *et al*. 2008). **Roseate**: During the breeding season, roseate terns can make extensive use of marine waters adjacent to their breeding colonies. Key prey items: Small, schooling marine fish, very rarely small crustaceans. Key habitats: roseate tern forage in/over shallow and upwelling areas, including tide rips and shoals and over sandy bottoms. Foraging range: max. 30km, mean max. 18.28km, mean 12.3km (Birdlife International, 2014). As these foraging range estimates relate to birds during the breeding season, the distances between post-breeding roost sites and feeding areas may be greater. **Arctic**: During the breeding season Arctic terns can make extensive use of marine waters adjacent to their breeding colonies. Key prey items: Small fish, crustaceans and other invertebrates. Key habitats: forage in/over open waters and shallow bays, rocky shores, tidal flats, shoals, tide rips and ocean fronts. Foraging range: max. 20.6km, mean max. 12.24km, mean 11.75km (Birdlife International, 2014). As these foraging range estimates relate to birds during the breeding season, the distances between post-breeding roost sites and feeding areas may be greater.

Attribute	Measure	Target	Relevant notes
Barriers to connectivity	Number; location; shape; area (hectares	No significant increase	As above.
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of roseate tern among the post-breeding aggregation of tern	Merne *et al.* (2008) describes the main roosting area as the exposed sand banks in south Dublin Bay primarily between the Martello Towers at Sandymount and Williamstown. Although principally used as a night roost, birds begin to roost at least one hour before sunset during the period July – September with peak activity occurring between mid-August and mid-September (Merne *et al.* 2008; Merne 2010). Merne (2010) recorded significant disturbance events to the roosting terns caused by people with dogs off the leash and kite surfing.

Note: All references in NPWS (2015a).

Table 3.6: South Dublin Bay and River Tolka SPA – Attributes and targets specific for breeding common tern

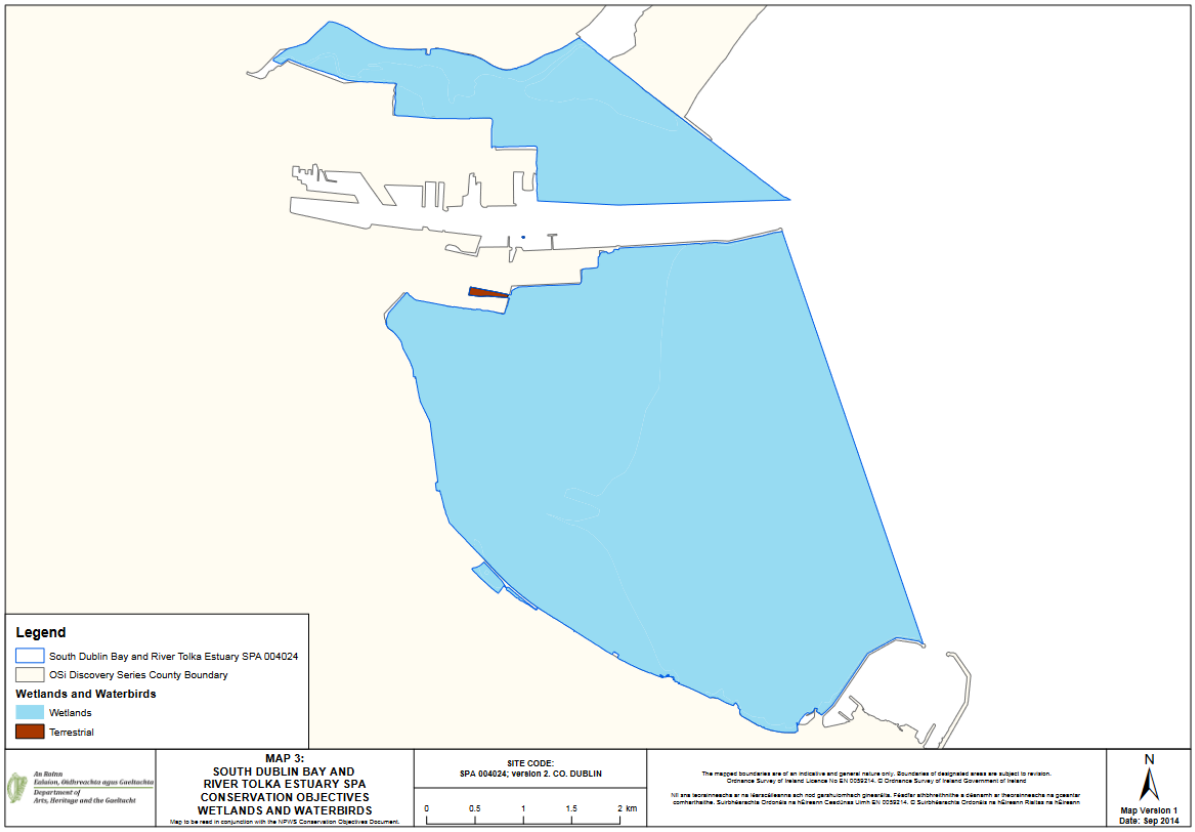
Attribute	Measure	Target	Relevant notes
Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline	Measure based on standard tern survey methods (see Walsh *et al*. 1995).
Productivity rate: fledged young per breeding pair	Mean number	No significant decline	As above.
Distribution: breeding colonies	Number; location; area (Hectares)	No significant decline	The common tern breeding colony in Dublin Bay is primarily sited on an artificial structure known as the 'ESB Dolphin' (see Newton *et al*. 2014)
Prey biomass available	Kilogrammes	No significant decline	During the breeding season, common terns can make extensive use of marine waters adjacent to their breeding colonies. Key prey items: Small fish, crustaceans, insects and occasionally squid. Key habitats: forage in/over shallow coastal waters, bays, inlets, shoals, tidal-rips, drift lines, beaches, saltmarsh creeks, lakes, ponds or rivers. Foraging range: max. 37km; mean max. 33.81km; mean 8.67km (Birdlife International 2014). Terns associated with the roost are thought to feed during the day in the wider Dublin Bay area but direct survey evidence is incomplete. Evening observations of arriving terns to the primary roosting area indicated that most flew into Dublin Bay

Attribute	Measure	Target	Relevant notes
			from an easterly and southeasterly direction leading the authors to suggest they were feeding in the shallow waters of the Kish/Bray and Burford Banks (Merne *et al.* 2008). Foraging ranges between post-breeding roost sites and feeding areas may be greater than the estimates given for the breeding season.
Disturbance at breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population.	The common tern breeding colony in Dublin Bay is primarily sited on an artificial structure known as the 'ESB Dolphin' (see Newton *et al*. 2014).

Note: All references in NPWS (2015a).

Also of relevance is the conservation objective to maintain the favourable conservation condition of the wetlands habitat (Figure 3.6) as a resource for the regularly occurring migratory waterbirds that utilise it. The attribute for this conservation objective is habitat area (measured in Hectares) and the target is that 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.

Figure 3.6: Wetlands habitat in South Dublin Bay and River Tolka SPA



Source: NPWS (2015a).

Potential impacts from proposed site investigations

Direct disturbance to habitats

A small proportion of the proposed survey area overlaps with the SPA (see Figure 3.1). In the process of removing the vibrocores, boreholes, CPTs and undertaking the benthic sampling and cores, a small area of the sediment surface within the wetlands habitat (Figure 3.6) will be removed. There will also be a small area of seabed disturbance within the footprint of the steel frame.

The total area of seabed removed and the area of physical disturbance would be highly localised, especially when set within the context of the extent of the wetlands habitat (2,192ha), and physical processes present within the site. Physical disturbance would be short term, temporary and over a negligible footprint in the context of the extent of the habitat. For example, in response to public submission 5 (see Table 1.2), the applicant calculated that the combined footprint from all subtidal sampling techniques, including the footprint of the jack-up vessel and deployment frame, and buoy deployment across the entire Foreshore Licence area as 4,311m^2 (0.004km^2). If all of this sampling was to take place within the wetlands habitat, it would represent only 0.02% of the area. This disturbance footprint would be temporary and would not significantly reduce the permanent area of habitat.

With respect to the breeding and passage tern SCIs, the prey biomass available attribute in Tables 3.5 and 3.6 indicates that terns associated with the roost are thought to feed during the day in the wider Dublin Bay area but direct survey evidence is incomplete. Evening observations of arriving terns to the primary roosting area indicated that most flew into Dublin Bay from an easterly and southeasterly direction leading the authors to suggest they were feeding in the shallow waters of the Kish/Bray and Burford Banks. Foraging ranges between post-breeding roost sites and feeding areas may be greater than the estimates given for the breeding season.

As above, the applicant calculated the combined footprint from all subtidal sampling techniques, including the footprint of the jack-up vessel and deployment frame, and buoy deployment across the entire Foreshore Licence area as 4,311m^2 (0.004km^2). Only a proportion of these activities are planned to take place on the Kish and Bray Banks, but even assuming that all activities occurred on the banks, the footprint would amount to 0.013% of the total area of the banks (the applicant took the total area of the Kish and Bray Banks to be the area within the 20m contour - 35km^2). The fine sand and gravel sediments which cover the banks are highly mobile and regularly disturbed by natural processes. A hydrodynamic study of the banks (Hydo Environmental Limited 2012) confirmed that tidal flow velocities and their corresponding bed shear stresses were high and of sufficient magnitude to be capable of mobilising a coarse to very coarse sand and that maximum computed shear velocities along the crest of the sand bar and to the south were sufficient to mobilise a fine gravel. It was concluded that the upper sand layer within the banks was mobile and capable of successive erosion and deposition taking place over spring and neap tidal cycles. Any additional sediment disturbed by the proposed site investigations works will therefore be minimal compared to that mobilised and deposited as a result of the natural tidal cycle.

Significant deterioration of habitats which could cause declines in the prey biomass available to the breeding and passage terns by direct disturbance to sand bank habitats (both within and outside the site), as a result of the proposed site investigations are not expected. Therefore, there will be no adverse effects on the integrity of the site associated with direct disturbance.

Underwater noise

Section 6.2.36 of the applicant's Report to inform AA indicated that seabirds were potentially impacted by underwater noise resulting in loss of feeding or displacement. It was noted that birds species most likely to be most sensitive to underwater noise were those which forage underwater for extended periods of time. Other seabirds (such as terns) that may shallow dive, dip, dive or surface feed are less sensitive to underwater noise, due to the brevity of exposure time and sensitivity to disturbance (Furness *et al.* 2013, Fliessbach *et al*. 2019).

The applicant considered that underwater noise, and any other impact associated with the presence of a vessel and associated survey disturbance, will be short term, intermittent and transient. As the vessel undertakes surveys, it will move throughout the survey area, therefore allowing birds to return to any areas they were potentially disturbed from. Based on the ranges provided by Woodward *et al.* (2019), the applicant concluded there was a significant amount of alternative foraging habitat with each species-specific range which seabirds could exploit if they were disturbed from an area. While not explicitly stated by the applicant, flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated (e.g. Fliessbach *et al*. 2019).

Noting the prey biomass available attribute information with respect to terns from the site possibly feeding in the shallow waters of the Kish/Bray and Burford Banks. For the reasons set out in Section 3.2.1, underwater noise generated by the proposed site investigations is unlikely to significantly impact fish, in particular sandeel which may be an important prey item for the tern species, both within and outside the site. Therefore, there will be no adverse effects on the integrity of the site associated with underwater noise.

Increased vessel traffic
In considering the potential effects of vessel disturbance upon bird species, the applicant noted in Section 6.3 of their Report to inform Appropriate Assessment that Fliessbach *et al*. (2019) found common tern and Arctic tern to have very low vulnerability to vessel disturbance. Both species breed on man-made structures within Dublin docks in the summer months (NPWS 2015a). Roseate terns are also considered to have low vulnerability to vessel disturbance (Furness *et al*. 2013).

The conservation objectives for tern species refer specifically to disturbance at roosting sites, with all tern species known to roost primarily in the intertidal exposed sandbanks of Dublin Bay (Table 3.5). There is a potential for localised disturbance of roosting birds within these intertidal areas should the works overlap temporally with their presence.

The applicant noted that nature of the works and noise effects would be short term, temporary and localised in nature, the SPA is in close proximity to a high amenity area and the species would be accustomed to a high level of noise and visual disturbance. However, there is a potential for localised displacement effects and with the implementation of mitigation measures (Section 3.3.4), the potential for disturbance of the breeding and passage tern SCI will be minimised and there will be no adverse effects on the integrity of the site.

3.2.5 North Bull Island SPA

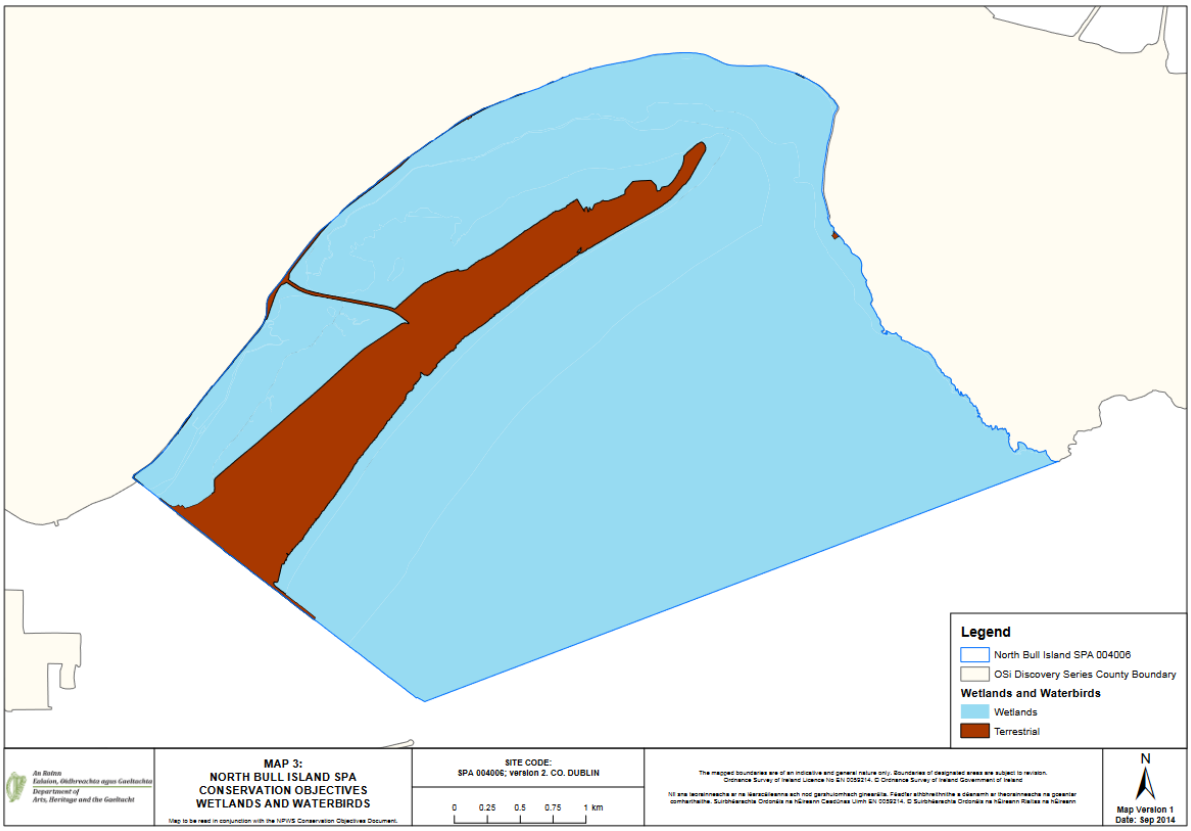
Based on the applicant's screening assessment, the Screening for AA (Hartley Anderson 2022) screened in all of the SCIs for likely significant effects associated with direct disturbance, increased vessel traffic and underwater noise resulting from the proposed site investigations.

However, the proposed site investigations within are anticipated to be conducted outside of the over-wintering season, when the over-wintering SCI species are likely to be absent. Therefore, there will be no potential for impact associated with underwater noise or increased

vessel traffic as all the SCI will be absent during the proposed site investigations. The only potential impact pathway is direct disturbance of the wetland habitat within the site.

The relevant conservation objective is to maintain the favourable conservation condition of the wetland habitat (Figure 3.7) as a resource for the regularly occurring migratory waterbirds that utilise it (NPWS 2015b). The attribute for this conservation objective is habitat area (measured in Hectares) and the target is that 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.

Figure 3.7: Wetlands habitat in North Bull Island SPA



As the proposed survey area is located 1.2km from the SPA, there is no potential for direct disturbance to the wetland habitat and therefore there will be no adverse effects on the integrity of the site.

3.3 Mitigation measures

3.3.1 Geophysical and geotechnical surveys

The applicant notes that the mitigation measures to be carried out as part of the proposed works have been developed, following the precautionary principle and the DAHG Guidance (2014), to minimise disturbance of the qualifying interests of the Rockabill to Dalkey Island SAC (harbour porpoise) and Lambay Island SAC (grey and harbour seals).

The measures below identified within the DAHG guidance are applicable for all subtidal geophysical acoustic surveys:

- Marine Mammal Observers - A qualified and experienced marine mammal observer (MMO) shall be appointed to monitor for marine mammals;
- Pre start monitoring - In waters up to 200 m deep, the MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO
- Ramp up procedure; and
- Break in outputs.

In addition to the requirements outlined above and in Appendix A, additional mitigation was proposed to allow for the presence of harbour porpoise calves during the months of May to September inclusive. This mitigation measure specifies that sound-producing activity shall not commence until at least 45 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO. This requirement was raised during consultation with NPWS in relation to survey works proposed under Foreshore Licence FS007029 and will also be implemented for all Dublin Array geophysical surveys determined in this Foreshore Licence.

The measures below are identified within the DAHG guidance (2014) are applicable for all geotechnical surveys:

- Marine Mammal Observers - A qualified and experienced MMO shall be appointed to monitor for marine mammals
- Pre start monitoring - In waters up to 200 m deep, the MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30[10] minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO.
- Drilling operations - Once normal drilling operations commence, there is no requirement to halt or discontinue the activity at night-time, nor if weather or visibility conditions deteriorate nor if marine mammals occur within a 500 m radial distance of the sound source, i.e., within the Monitored Zone
- Breaks in sound output

The full suite of mitigation measures were presented in Appendix A of the applicant's NIS.

3.3.2 Micro-siting of sampling locations

- The inter-tidal and sub-tidal geotechnical sampling locations will be selected after review of the geophysical and environmental data collected during the 2020 Site Investigation campaign. The data will be reviewed for the presence of potential ecological features such as subtidal geogenic reef. Sampling locations will then be micro-sited where necessary to avoid ecological (as well as archaeological) impacts, specifically with reference to potential subtidal geogenic reef features within the Rockabill to Dalkey SAC which may not have been previously mapped or identified.
- The applicant will consult with NPWS on the results of the initial site investigation campaign and the selection of geotechnical sampling locations prior to sampling taking place.

[10] Given the findings of the assessment that the geotechnical proposed works fall outside the range of hearing thresholds for harbour porpoise, in line with the guidance the use of 30 mins for geotechnical works was considered sufficient by the applicant.

3.3.3 Poolbeg intertidal

- To prevent damage to saltmarsh and mudflats and sandflats not covered by seawater at low tide qualifying interests (South Dublin SAC), all access to the Poolbeg intertidal by track machine will be supervised by an ecologist to ensure these sensitive areas are avoided; and
- The inter-tidal survey is proposed to be carried out outside the over-wintering period (Sept - Mar) to avoid disturbance to the overwintering SCIs of the South Dublin Bay and River Tolka SPA.

3.3.4 All intertidal locations

In order to minimise disturbance of bird receptors within the intertidal areas of the Foreshore Licence area, the following mitigation measures will be implemented:

- An ecologist would be employed to ensure disturbance is minimised and site integrity is maintained. If roosting birds are present on the shore during intertidal works, the nearby sample stations will be postponed until the birds depart, without provocation;
- Drift lines in close proximity to the proposed route would contain the highest proportion of potential food source for bird species. If present, these will be avoided by machinery and personnel;
- If for any reason access by sea to the near-shore or intertidal sample locations is not possible, any temporary access arrangements or structures that are put in place to allow machinery access to the beach area will be prepared in consultation with an ecologist and the site should be fully reinstated post works;
- Reinstatement of the intertidal habitat will be carried out to pre-survey conditions. Spoil from boreholes will be contained and removed off site. Should the boreholes be close to the HDD cable route, the boreholes will be filled with grout to prevent weakness during drilling operations during construction.

3.4 In-combination effects

Those sites and projects identified by the applicant as having the potential for in-combination effects are shown on Figure 3.8 below.

Rockabill to Dalkey Island SAC

Dublin Port maintenance dredging campaigns
Dublin Port maintenance was screened into the in combination assessment for consideration of impacts on harbour porpoise from underwater noise. McKeown (2016) carried out underwater noise measurements during the 2016 Dublin Port maintenance dredging campaign. Sound levels for the dredging operations were recorded at ranges of 213 and 268m were below the disturbance threshold for harbour porpoise of 140 dB re 1 µPa SPLRMS and 140 dB re 1µPa² s SEL. Increased noise was recorded as restricted to <100 m from the dredger during dredging (McKeown 2016).

Maintenance dredging, if required, within the Rockabill to Dalkey SAC area is expected to be limited to less than one day per annum. Whilst exposing porpoises within the SAC to increased noise and disturbance, this will only occur for one day which will not lead to any significant impact. Given that noise from dredging vessels will not be any greater than background shipping noise, disturbance and displacement upon the harbour porpoise community within this European Site was not predicted. The project concluded that, with appropriate mitigation it would not adversely affect the integrity of the site. Given these

findings and the temporary and localised nature and scale of underwater noise effects predicted from the proposed site investigations alone, effects would not be expected to contribute towards any in-combination impacts, particularly with the implementation of mitigation measures (see Section 3.3.1).

Dublin Port capital dredging

The potential for in-combination underwater noise effects with respect to the Dublin Port capital dredging project (FS007164) were not identified by the applicant. The project proposes to dispose of 500,000m^3 of dredge spoil at the disposal site west of Burford Bank. This dredging will take place during winter months over an eight year period (2022 – 2029), and will not coincide with maintenance dredging operations which will be restricted to summer months. With respect to underwater noise associated with capital dredging and disposal operations, sound levels will be of a similar magnitude as those described for maintenance dredging above and the proposed site investigations would not be expected to contribute towards any in-combination underwater noise impacts, particularly with the implementation of mitigation measures (see Section 3.3.1).

Irish Water Greater Dublin Bay drainage

The Irish Water construction of a pipeline to the north of Dublin Bay, including a section of the Baldoyle Estuary, will involve excavation of a trench 5m deep, installation of the pipeline and backfilling with previously excavated material, together with the installation of two piled structures. Whilst there is no spatial overlap, the applicant identified the potential for temporal overlap with the proposed site investigations at Dublin Array.

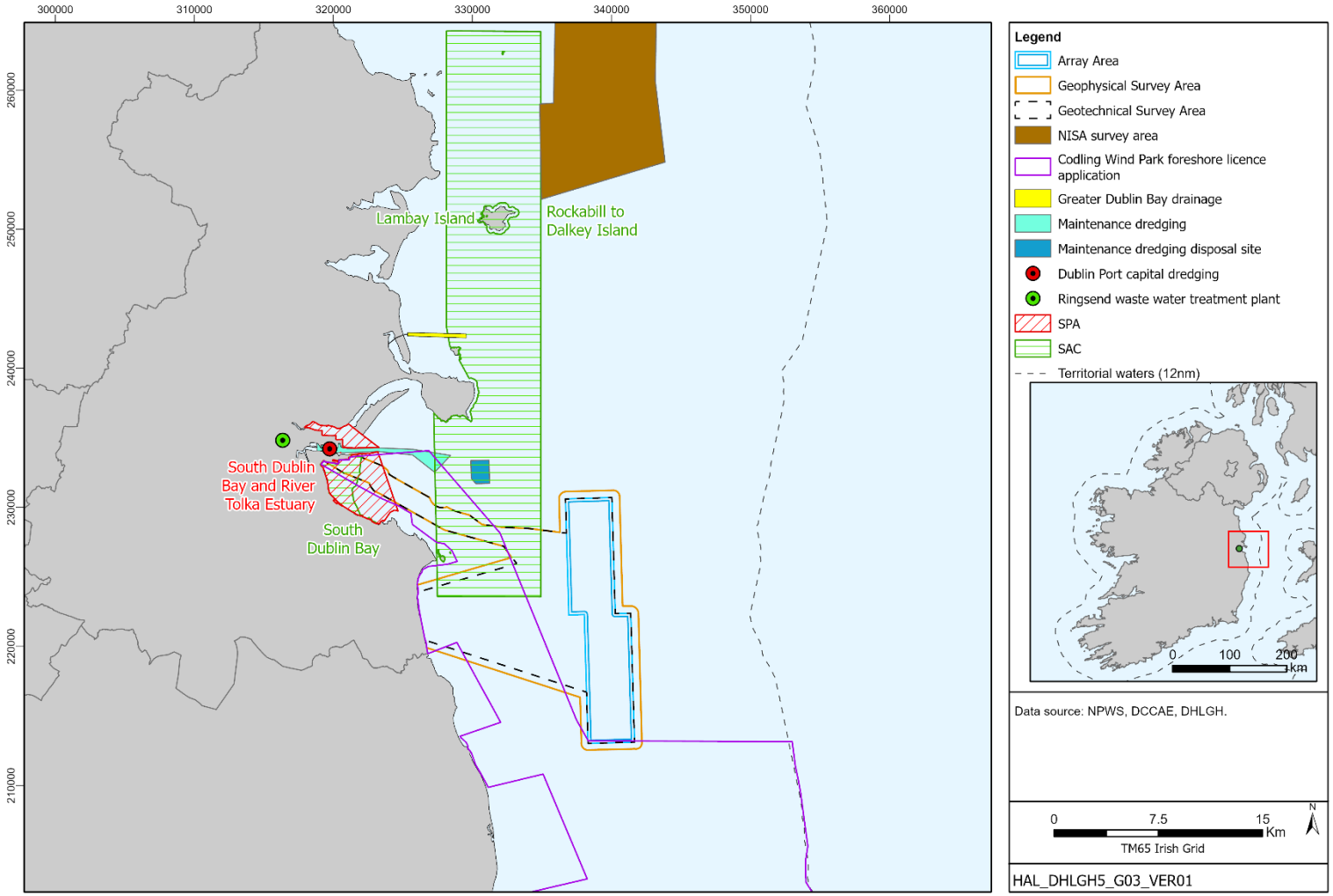
The applicant noted that the NIS for the Greater Dublin Bay Drainage project concluded that the overall level of dredging noise was expected to be low but may induce some behavioural responses by harbour porpoises when in close proximity (<1km). Although the majority of these works would be carried out outside the SAC, additional mitigation methods were deemed to be required to ensure that effects on harbour porpoise did not compromise the Conservation Objectives for the SAC.

The noise impacts from piling were noted as significantly greater than noise from the dredging and whilst both potential piling locations are located outside the boundary of the SAC, a high level of mitigation was proposed to ensure that harbour porpoise were not found within close proximity to piling when operational. The applicant concluded that given the localised nature of any underwater noise effects from survey activities at Dublin Array and that both projects were committed to mitigation in line with the DAHG guidance (see Section 3.3.1), no adverse effects upon site integrity as a result of the proposed site investigations in-combination with the Greater Dublin Bay Drainage project would occur.

Codling Bank windfarm site investigation studies

The applicant noted that the NIS for the Codling Bank windfarm Foreshore Licence application concluded no/negligible potential for the (pulsed) sound emitted by the geophysical survey and positioning equipment likely to be used to induce the onset of either permanent threshold shift (PTS) or Temporary Threshold Shift (TTS), respectively, i.e. auditory injury on the harbour porpoise qualifying interest. Additionally, sound produced as a result of the proposed geotechnical survey work (e.g. vibrocoring) did not have the potential to induce the onset of either PTS or TTS. The works were concluded to have potential for disturbance of a very small number of individuals, but any effects were likely to be temporary and reversible with suitable alternative local habitat being available in the meantime. The applicant concluded that given the localised nature of any effects from survey activities and that both projects were committed to mitigation in line with the DAHG guidance (Section 3.3.1), no adverse effects upon site integrity as a result of the proposed site investigations in-combination with Codling would occur.

Figure 3.8: Sites and projects identified as having the potential for in-combination effects



North Irish Sea Array site investigation works
The applicant noted the potential for temporal overlap of the NISA geophysical survey with the surveys for Dublin Array. The NIS for NISA Foreshore Licence application submitted by Statkraft Ltd concluded no LSE for geotechnical, metocean and benthic surveys occurring within the site boundary. The site investigation works at NISA will be undertaken over 20 km from the survey activities at Dublin Array, and any underwater noise generated would attenuate rapidly to within background levels, with no adverse effects predicted. Given the localised nature of any effects from survey activities and that both projects were committed to mitigation in line with the DAHG guidance (see Section 3.3.1), the applicant concluded that no adverse effects upon site integrity as a result of the proposed works in-combination with NISA would occur.

Conclusion
In-combination physical disturbance effects: The proposed site investigation, Codling Bank site investigations and the Dublin Port maintenance dredging projects partly overlap with the Rockabill to Dalkey SAC. However, the Codling Bank licence area appears to avoid the reef habitat around Dalkey Island and neither the proposed site investigations nor the maintenance dredging are within areas of identified Annex I Reefs habitat (Figure 3.2). Noting the proposed mitigation (Section 3.3.2) to avoid potentially unidentified reef areas), the projects identified will not cause significant in-combination disturbance (continuous or ongoing) of the reef community complexes within the site and the threshold of 15% of the interpolated area of each community type (see Table 3.1) will not be exceeded.

In-combination underwater noise effects: The proposed site investigations and those other wind farm site investigations identified above (Codling, NISA) could theoretically happen at the same time. The risk of injury to harbour porpoise qualifying interests from these surveys is considered to be very low and only within the immediate vicinity of the survey vessel or operation. Given the localised nature of any effects from survey activities and that all projects have committed to mitigation in line with the DAHG guidance, there will be no adverse in-combination effects on the integrity of the site.

Further, the licensee shall liaise with the Department and use their best endeavours to liaise with the holders of Foreshore licences for other surveys and site investigations to be undertaken in the vicinity of the Foreshore licence area specified in this application.

In-combination increase in vessel traffic: For all three projects, the survey vessels will operate at slow speeds and/or be stationary for a large portion of the time. The three proposed site investigations if carried out at the same time are not likely to result in a significant increase in vessel traffic in the area of the Rockabill to Dalkey SAC (Figure 3.3). The temporal overlap of the three surveys would not significantly change the existing level of collision risk to harbour porpoise. Therefore, the in-combination increase in vessel traffic associated with the proposed site investigations will not cause death or injury to individuals to an extent that may ultimately affect the harbour porpoise community at the site.

South Dublin Bay SAC

Codling Bank windfarm site investigation studies
The applicant screened the Codling Bank site investigation studies into the in combination assessment for consideration of the benthic and intertidal habitats of the qualifying interests for mudflats and sandflats not covered by seawater at low tide; annual vegetation of drift lines; *Salicornia* and other annuals and embryonic shifting dunes. The applicant noted that the NIS for the Codling Bank windfarm site investigation studies concluded negligible to no potential for any significant physical disturbance effects on these benthic and intertidal habitats from the small scale and temporary activities proposed. Given the localised nature of the proposed

site investigations associated with this application and the implementation of mitigation measures (see Sections 3.3.3 and 3.3.4), the applicant concluded that no adverse effects upon site integrity in-combination with Codling Bank windfarm would occur.

Conclusion
In-combination physical disturbance effects: The survey areas of the proposed cable corridors for both the Dublin Array and Codling Bank projects partly overlap within the South Dublin SAC. For both, the total area of seabed removed and the area of physical disturbance will be highly localised, especially when set within the context of the extent of the fine sands with *Angulus tenuis* community complex (Figure 3.4), and physical processes present within the site. As indicated above, the estimated combined footprint from all subtidal sampling techniques for the proposed Dublin Array site investigations would represent only 0.006% of the interpolated area of the fine sands with *Angulus tenuis* community complex, if all of the sampling was to take place within the site. Therefore, the limited area of potential footprint overlap of the two surveys within the site is unlikely to exceed the 15% threshold associated with the community distribution attribute (Table 3.3 above). Significant disturbance of the fine sands with *Angulus tenuis* community complex is not therefore expected and there will be no adverse effects on the integrity of the site.

Further, the licensee shall liaise with the Department and use their best endeavours to liaise with the holders of Foreshore licences for other surveys and site investigations to be undertaken in the vicinity of the Foreshore licence area specified in this application.

Lambay Island SAC

North Irish Sea Array site investigation works
The applicant noted the potential for temporal overlap of the NISA geophysical survey with the surveys for Dublin Array. The NIS for NISA Foreshore Licence application submitted by Statkraft Ltd concluded no LSE for geotechnical, metocean and benthic surveys occurring within the site boundary. The site investigation works at NISA will be undertaken over 20 km from the survey activities at Dublin Array, and any underwater noise generated would attenuate rapidly to within background levels, with no adverse effects predicted. Given the localised nature of any effects from survey activities and that both projects were committed to mitigation in line with the DAHG guidance (see Section 3.3.1), the applicant concluded that no adverse effects upon site integrity as a result of the proposed works in-combination with NISA would occur.

Conclusion
In-combination underwater noise effects: The proposed site investigations and those associated with NISA could theoretically happen at the same time. Given that any underwater noise associated with the surveys would attenuate rapidly to background levels, the spatial separation of both projects from the site, and that both projects will implement mitigation (DAHG 2014), the potential for disturbance to the grey and harbour seal qualifying interests (both within and outside the site) will be minimised and there will be no adverse effects on the integrity of the site.

Further, the licensee shall liaise with the Department and use their best endeavours to liaise with the holders of Foreshore licences for other surveys and site investigations to be undertaken in the vicinity of the Foreshore licence area specified in this application.

In-combination increase in vessel traffic: For both projects, the survey vessels will operate at slow speeds and/or be stationary for a large portion of the time. The two proposed site investigations if carried out at the same time are not likely to result in a significant increase in vessel traffic in the area of the Lambay Island SAC (Figure 3.3). The in-combination increase

in vessel traffic associated with the two site investigations will not cause death or injury to individuals to an extent that may ultimately affect the grey or harbour seal populations at the site, and there will be no adverse effects on the integrity of the site.

South Dublin and River Tolka SPA

Ringsend Waste Water Treatment

The potential for in-combination effects with the Ringsend WWT upgrade was considered by the applicant given the spatial overlap with the South Dublin and River Tolka Estuary SPA and that temporary construction noise generated had the potential to cause disturbance to wintering waterbirds and nesting terns within this SPA. The applicant indicated that the NIS for the Ringsend WWT upgrade concluded that the construction noise would not be threatening to birds and as such they would not be disturbed thus resulting in imperceptible impacts on the Conservation Objectives of the European site. The upgrade works would be carried out outside of the wintering period when Brent geese were absent from the SPA with grassland reinstated prior to their return. The NIS also indicated the potential for indirect effects from disturbance to waterbird populations on the grassland immediately adjacent to the works, due to the activity of construction workers on the site. Mitigation measures included screening around the southern perimeter to prevent any visual disturbance on the grassland area. With the implementation of these mitigation measures and those proposed by this application (see Section 3.3.4), the applicant concluded no adverse effects upon site integrity as a result of the proposed site investigations in-combination with Ringsend WWT upgrade. It is noted that the upgrade works are well underway[11].

Codling Bank windfarm site investigation studies

The applicant considered the potential for in-combination effects with the surveys planned under the Foreshore Licence application for Codling Bank windfarm site investigations, particularly for works in the intertidal areas where visual and noise impacts could lead to disturbance of qualifying species. The applicant indicated that the NIS for Codling Bank concluded that, with proposed mitigation measures, in an already industrialised, urban area, no potential adverse effects to any Conservation Objectives were identified for the wintering, staging or breeding features. With the implementation of mitigation measures (see Section 3.3.4) for the proposed site investigations, the applicant concluded that there would be no adverse effects upon site integrity in-combination with planned surveys of Codling Bank windfarm.

Conclusion

In-combination physical disturbance effects: The survey areas of the proposed cable corridors for both the Dublin Array and Codling Bank projects partly overlap within the South Dublin and River Tolka SPA. The total area of seabed removed and the area of physical disturbance associated with the two projects would be highly localised, especially when set within the context of the extent of the wetlands habitat (2,192ha), and physical processes present within the site. In-combination physical disturbance would be short term, temporary and over a negligible footprint in the context of the extent of the wetland habitat and would not significantly reduce the permanent area of habitat.

In-combination increase in vessel traffic: As indicated in Section 3.2.4, the proposed site investigations for the Dublin Array are anticipated to be conducted outside of the over-wintering season, when the over-wintering SCI species are likely to be absent. The conservation objectives for tern species refer specifically to disturbance at breeding (primarily the 'ESB dolphin' within the Dublin Port) and roosting sites, with all tern species known to roost primarily in the intertidal exposed sandbanks of Dublin Bay. There is potential for localised

[11] https://www.water.ie/projects/local-projects/ringsend/

disturbance of roosting birds within these intertidal areas should the three project overlap temporally with their presence. However, with the implementation of mitigation measures proposed by the projects, the potential for disturbance of the breeding and passage tern SCI will be minimised and there will be no adverse effects on the integrity of the site.

Further, the licensee shall liaise with the Department and use their best endeavours to liaise with the holders of Foreshore licences for other surveys and site investigations to be undertaken in the vicinity of the Foreshore licence area specified in this application.

3.5 Transboundary effects

No transboundary effects were identified.

3.6 Appropriate Assessment conclusion

Supporting information
The applicant provides sufficient ecological baseline information and details of the Conservation Objectives for each of the Natura 2000 sites assessed (Section 4, applicant's NIS). In general this information is objective, scientifically grounded and sufficient to inform the assessment.
Consideration of impacts
In general the applicant provides adequate information of sufficient quality to assess the potential for direct and indirect effects on the Conservation Objectives of the relevant sites. This information has been augmented with clarifications from the applicant with respect to public submissions (Table 1.2) and other technical details where relevant.
Mitigation measures
The mitigation measures summarised in Section 3.3 of this report and detailed in Appendix A of the applicant's NIS are sufficient to avoid significant impacts on the relevant sites.
In-combination effects
Section 4.3 of the applicant's NIS informed the assessment of other activities that could potentially have in-combination effects with the proposed site investigation (Section 3.4 of this report). No significant in-combination effects are expected.
Transboundary effects
No transboundary effects were identified or are considered likely.
Appropriate Assessment conclusion
The applicant's NIS provides sufficient data and information on the proposed site investigations, the relevant sites and analysis of potential effects on those sites, to allow the Competent Authority to complete an AA. The applicant has shown that the operations will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects, and there is no reasonable scientific doubt in relation to this conclusion.

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