Hartley Anderson Limited

Marine Environmental Science and Consultancy

Appropriate Assessment Screening

Cross Shannon Cable Project Foreshore Licence Application

Report to
Department of Housing, Local Government and Heritage - updated following RFIs

February 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) Screening (stage 1 screening for the likelihood of significant effects on Natura 2000 sites), from an application for a Foreshore Licence for a proposed electricity transmission infrastructure development and associated works (known as the 'Cross Shannon Cable Project'). The application by EirGrid plc. (the licensed Transmission System Operator (TSO) who is applying for a licence to be granted to ESB Networks, the Transmission Asset Owner (TAO)), generally comprises the laying of four 400 kV underground cables (UGC) across the Lower Shannon Estuary, between the existing Moneypoint 400 kV Electricity Substation in the townland of Carrowdotia South, Co. Clare and the existing Kilpaddoge 220/110 kV Electricity Substation in the townland of Kilpaddoge, Co, Kerry. The connection at Moneypoint will be at the existing substation on ESB lands. The connection at Kilpaddoge requires an extension of 5,500m^2 to the existing substation on ESB lands.

In September 2020, EirGrid applied to An Bord Pleanála (Ref. ABP-307798-20) for the same electricity transmission infrastructure to be considered as a Strategic Infrastructure Development (SID). In June 2021 An Bord Pleanála granted planning permission, subject to conditions, to EirGrid for the installation of the Shannon Electricity Cables.

1.2 Application documents submitted

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

- Application form [Applicant: EirGrid]
- Series of drawings
- Screening for Appropriate Assessment and Natura Impact Statement [Aquafact International Services Ltd, July 2020]
- NIS Appendices
- Planning and Environmental Considerations Report (PECR) [Mott MacDonald Ireland Ltd, 30 July 2020]
- PECR Appendices
- Planning permission – Applicant response to ABP
- An Bord Pleanála Order [4 June 2021]
- ABP Inspector's Report [19 March 2020]. A later ABP Inspector's Report [11 January 2021] was downloaded from the ABP website.
- Prescribed Bodies Consultation
    - Prescribed Bodies Observations
    - Applicant's response to Public Bodies Observations.

1.3 Relevant consultation responses

The licence application was open for public consultation between 7th May to 7th June 2021.

Consultation responses from the prescribed bodies are provided in Table 1.1. Note that most of the responses are not directed at the Habitats Directive aspects of the proposal.

Table 1.1: Responses from prescribed bodies to the consultation

Statutory Body	Applicant's Response
Marine Survey Office The Marine Survey Office had no objection to the application from a navigational safety perspective. However, it made the following points: • The applicant shall engage with Shannon Foynes Port company throughout the construction phase of the subsea cables to ensure the safety of navigation is maintained for all mariners within the sea area covered by the application. • An appropriate Marine Notice detailing the works and vessels engaged in said works shall be published for the information of all marine users in the Shannon Estuary. • The applicant shall ensure the information regarding the final location, depth and shore markings of submarine cables is submitted to the UKHO for inclusion on relevant navigation charts.	The Applicant acknowledged the observations made by the Marine Survey Office and accepted the recommendations made by the Marine Survey Office.
Department of Defence (DOD) Following consultations with the Naval Service, the Department of Defence had the following observations: • A Temporary Notice to Mariners (NTM) should be issued during the cable laying operation to inform vessels transiting through the area that the operation is taking place. • In addition, a NTM will should be issued once the work is complete clearly indicating the cables location on the river bed to indicate that vessels should not anchor in the location of the cable.	The Applicant acknowledged the observations made by the Department of Defence and accepted the recommendations made above by the Department of Defence.
Geological Survey Ireland (GSI) Observation 1 The Geological Survey Ireland (a division of the Department of the Environment, Climate and Communications) made the following comments. <u>Geoheritage</u> Geological Survey Ireland is in partnership with the National Parks and Wildlife Service (NPWS, Department of Housing, Local Government and Heritage), to identify and select important geological and geomorphological sites throughout the country for designation as geological NHAs (Natural Heritage Areas). This is	The Applicant acknowledged the observations made by Geological Survey Ireland and will make available reports on any site investigations.

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addressed by the Geoheritage Programme of Geological Survey Ireland, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts. County Geological Sites (CGSs), as adopted under the National Heritage Plan, include additional sites that may also be of national importance, but which were not selected as the very best examples for NHA designation. All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS. CGSs are now routinely included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online Map Viewer. The CGSs for Kerry remain unaudited and as such there is limited detailed information on each site available publicly. The sites are listed in a master list of unaudited sites and are presented on Geological Survey Ireland's Map Viewer as sites with buffer zones but no specific site boundary. The audit for Co. Clare was completed in 2005. The full report details can be found here. Our records show that there are no CGSs in the vicinity of the Cross Shannon Electricity Cable. <u>Groundwater</u> Groundwater is important as a source of drinking water, and it supports river flows, lake levels and ecosystems. It contains natural substances dissolved from the soils and rocks that it flows through, and can also be contaminated by human actions on the land surface. As a clean, but vulnerable, resource, groundwater needs to be understood, managed and protected. Geological Survey Ireland's Groundwater and Geothermal Unit, provides advice, data and maps relating to groundwater distribution, quality and use, which is especially relevant for safe and secure drinking water supplies and healthy ecosystems. Proposed developments need to consider any potential impact on specific groundwater abstractions and on groundwater resources in general. We	

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recommend using the groundwater maps on our Map viewer. which should include: wells; drinking water source protection areas; the national map suite - aquifer, groundwater vulnerability, groundwater recharge and subsoil permeability maps. For areas underlain by limestone, please refer to the karst specific data layers (karst features, tracer test database; turlough water levels (gwlevel.ie). Background information is also provided in the Groundwater Body Descriptions. Please read all disclaimers carefully when using Geological Survey Ireland data. Groundwater flooding maps (historic & predictive) are available through our web viewers. The historic flood maps provide information of historic flooding, both surface water and groundwater. The predictive groundwater flood map provides information on the probability of future karst groundwater flooding (where available). For information on the development and limitations of these flood maps, please check the user guidance notes on our website. <u>Geological Mapping</u> Geological Survey Ireland maintains online datasets of bedrock and subsoils geological mapping that is reliable and accessible including depth to bedrock and physiographic maps. These datasets include bedrock data and subsoil classifications. We would encourage you to use these data which can be found here, in your future assessments. Geological Survey Ireland is continually developing new 3D models and improving upon existing models, as new geological data and software tools emerge. Our 3D models are accessible on our model viewer, where they can be interrogated, faults and stratigraphic units examined, virtual cross-sections and boreholes created. Depending on their intended application and audience, models are developed at different scales and to different depths below the ground surface. Our 3D models offer a key element of geotechnical risk management by identifying areas requiring more site investigation. <u>Geohazards</u>	

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Geohazards can cause widespread damage to landscapes, wildlife, human property and human life. In Ireland, landslides, flooding and coastal erosion are the most prevalent of these hazards. We recommend that geohazards be taken into consideration, especially when developing areas where these risks are prevalent, and we encourage the use of our data when doing so. Geological Survey Ireland also engaged in a national project on Groundwater Flooding. The data from this project may be useful in relation to Flood Risk Assessment (FRA) and management plans, and is described in more detail under 'Groundwater' above. Coastal Vulnerability while seen as a potential geohazard, is discussed in more detail under our marine and coastal unit information below <u>Natural Resources (Minerals/Aggregates)</u> Geological Survey Ireland provides data, maps, interpretations and advice on matters related to minerals, their use and their development in our Minerals section of the website. The Active Quarries, Mineral Localities and the Aggregate Potential maps are available on our Map Viewer. We would recommend use of the Aggregate Potential Mapping viewer to identify areas of High to Very High source aggregate potential within the area. In keeping with a sustainable approach we would recommend use of our data and mapping viewers to identify and ensure that natural resources used in the proposed development are sustainably sourced from properly recognised and licensed facilities, and that consideration of future resource sterilization is considered. <u>Geotechnical Database Resources</u> Geological Survey Ireland continues to populate and develop our national geotechnical database and viewer with site investigation data submitted voluntarily by industry. The current database holding is over 7500 reports with 134,000 boreholes; 31,000 of which are digitised which can be accessed through downloads from our Geotechnical Map Viewer. We would encourage the use of this database as part of any baseline geological assessment of the proposed development as it can provide invaluable baseline data for the region	

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or vicinity of proposed development areas. This information may be beneficial and cost saving for any site-specific investigations that may be designed as part of the project. Marine and Coastal Unit Our marine environment is hugely important to our bio-economy, transport, tourism and recreational sectors. It is also an important indicator of the health of our planet. Geological Survey Ireland's Marine and Coastal Unit in partnership with the Marine Institute, jointly manages INFOMAR, Ireland's national marine mapping programme; providing key baseline data for Ireland's marine sector. The programme delivers a wide range of benefits to multi-sectoral end-users across the national blue economy with an emphasis on enabling our stakeholders. Demonstrated applications for the use of INFOMAR's suite of mapping products include Shipping & Navigation, Fisheries Management, Aquaculture, Off-shore Renewable Energies, Marine Leisure & Tourism and Coastal Behaviour. INFOMAR also produces a wide variety of seabed mapping products that enable public and stakeholders to visualize Ireland's seafloor environment https://www.infomar.ie/maps/downloadable-maps/maps. Story maps have also been developed providing a different perspective of some of the bays and harbors of the Irish coastline https://www.infomar.ie/maps/story-maps/exploring-dingle-bay-different-perspective. We would therefore recommend use of our Marine and Coastal Unit datasets available on our website and Map Viewer. The Marine and Coastal Unit also participate in coastal change projects such as CHERISH (Climate, Heritage and Environments of Reefs, Islands, and Headlands) and are undertaking mapping in areas such as coastal vulnerability and coastal erosion. Further information on these projects can be found at here. Other Comments Should development go ahead, all other factors considered, Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out. Should any significant bedrock cuttings be created, we would ask that they will be designed to remain visible as rock exposure rather than covered with soil and vegetated, in accordance with safety guidelines and engineering	

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constraints. In areas where natural exposures are few, or deeply weathered, this measure would permit on-going improvement of geological knowledge of the subsurface and could be included as additional sites of the geoheritage dataset, if appropriate. Alternatively, we ask that a digital photographic record of significant new excavations could be provided. Potential visits from Geological Survey Ireland to personally document exposures could also be arranged. The data would be added to Geological Survey Ireland's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector.	
Geological Survey of Ireland (GSI) Observation 2 Having reviewed ABP's further information request and the subsequent information submitted by the applicant, Geological Survey Ireland had no further response or submission to make in light of this information and its original comments and observations remain unchanged.	The Applicant acknowledged the observations made by Geological Survey Ireland and will make available reports on any site investigations.
Geological Survey of Ireland (GSI) Observation 3 The Geological Survey of Ireland had no futher comments or observations to make on the matter.	The Applicant had no further comment to make in response to same.
Marine Institute Observation 1 A foreshore application has been submitted for the Cross Shannon Subsea Cable project development by EirGrid Plc. The development comprises the installation of a 400kV circa 5km AC (alternating current) underground cable between the existing Moneypoint 400kV GIS substation in County Clare and the existing Kilpaddoge 220kV substation. Laying of 400 kV Submarine Cables across the Lower Shannon Estuary, including: • The laying of 4 no. 400 kV submarine cables (approx. 2.8 km each) from the proposed land-submarine transition bays located east of the existing Moneypoint Generation Station in Co. Clare across the Lower Shannon Estuary to the proposed 400 kV Air Insulated Switchgear (AIS) Compound at the existing Kilpaddoge 220/110 kV Electricity Substation in Co. Kerry. The submarine cables will be installed by standard submarine installation techniques, which primarily involves them being buried in the seabed.	The Applicant noted that the issue of EMF was responded to in the further information submitted to An Bord Pleanála (Planning Permission - Applicant Response to ABP, December 2020). The following further information was provided. Electric and magnetic fields, often referred to as EMFs, are produced both naturally and as a result of human activity. EirGrid designs, develops and operates the transmission grid in accordance with stringent safety recommendations which are made by national and international agencies. The proposed cable will include a sheath covering that will act to reduce the emission of electric fields to negligible levels. The following sections therefore relate to static magnetic fields produced by the transmission of electricity. The environmental assessment of the potential effect of EMF fields on behaviours of marine species was informed by a review of available literature.

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• The installation of communication links between both substations, this will take the form of a fibre optic cable that will be integrated into each of the proposed 400 kV cables. • The installation of fibre optic cables for maintenance and cable monitoring, this will take the form of an armoured fibre cable wrapped helically around each of the proposed 400 kV cables. • Associated works in the foreshore include the reinforcement of the ground beneath and around the cables by various methods including concrete ramps, concrete cable channels, infilling with gravel/concrete, articulated pipes, gabion wall and rock protections where required. A Planning and Environmental Considerations Report and Natura Impact Statement (NIS) were prepared and submitted with the application. These documents consider both the onshore and foreshore aspects of the overall project. The NIS identifies the likely interactions between the proposed project and the conservation features of all Natura 2000 sites in the vicinity. With certain mitigation measures, the interactions identified during construction conclude that the construction phase of the development is unlikely to impact on the integrity of the conservation sites. What does not appear to have been considered in the NIS is the operational aspects of the development and if this may have an impact on certain conservation features. In particular, no consideration is given to the likely impact of the operation of 400 kV DC transmission line and if this will be any different to the current configuration that uses 220 kV. In particular, the impact that magnetic fields may have on designated fish species (Salmon, lamprey) and marine mammals (Bottlenose dolphin) should have been considered. The closest licenced aquaculture site (T06/233) to the proposed development is approximately 4km. On the basis of the information provided in the planning report, the development is unlikely to impact on any licenced aquaculture activities. There are no known fisheries in the area. It should be noted the closest aquaculture site indicated in the Planning and Environmental Considerations Report is identified as T08/004BO and while this is correctly	Reviews of studies on the effects of EMF emissions in migratory fish species have reported a lack of data on Atlantic salmon (*Salmo salar*) and sea trout (*Salmo trutta*) (e.g. Waterside Ecology 2017, Gill and Bartlett 2010). To overcome this lack of data, Gill and Bartlett (2010) appraised the likely responses of Atlantic salmon and sea trout to EMF based on documented responses of other salmonid species, (e.g. Lohmann *et a*l. 2008; Putman *et al*. 2014). Studies undertaken by Lohmann *et al*. (2008) and Putman *et al.* (2014) on salmonid species including sockeye salmon (*Oncorhynchus nerka*), chinook salmon (*Oncorhynchus tshawytscha*), chum salmon (*Oncorhynchus keta*) suggested that earth's magnetic field combined with other directional information, such as stellar cues, are used to identify particular coastal or oceanic regions. If salmonids do use magnetic cues for orientation or navigation it is likely that these cues are used at a large spatial scale and during the oceanic phase of outward and homeward migrations (Lohmann *et al.,* 2008; Putman *et al.,* 2014). Once an appropriate coastal region is identified, migration to home (natal) rivers is likely dependent on olfactory cues, with chemical cues extending from natal rivers strongly implicated in the final phases of salmonids migrations (Stabell, 1984; Johnstone *et al*. 2012). Thorstad *et al.* (2011) suggested that once salmon have reached sheltered fjords and sea lochs olfactory cues are the most important sense for homing. Given that the last phase of the spawning migration in salmonids is primarily governed by olfactory cues (Thorstad *et al.* 2011) it can be concluded that salmonid species migration will not be significantly affected by EMF produced by the Cross Shannon cable. As for salmonid species, cross ocean migration in European eel (*Anguilla anguilla*) is likely to be influenced by the species ability to detect the earth's magnetic field (Durif *et a*l. 2013; Naissbett-Jones *et al*. 2017), when located closer to the coast olfaction play a large part in locating river and streams (Waterside Ecology 2017).

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identified as a fishery order area, it should be noted that this is not a licenced aquaculture site and is not governed by DAFM aquaculture licencing legislation (Fisheries Act 1997).	A number of studies have reported no evidence that EMF presents obstructions to eel migrations. Westerberg and Lagenfelt (2008) assessed migration behaviour of the European eel passing an underwater high voltage cable extending between the Swedish mainland and the island Öland. The study reported that while eel reduced its swimming speed when crossing the cable there was no evidence that the cable was acting as an obstruction to migration. Similarly, a two year field study of migrating Silver eels passing the Baltic Cable showed the species crossed the cable with the same probability as if it were absent (Westerberg 2000). While a number of individuals changed their course slightly when passing the cable it was concluded that the cable did not pose a threat to migration. Given the above, it can be concluded that European eel migration will not be significantly affected by the proposed development. The review by Gill and Bartlett (2010) reported that there was no evidence that sea lampreys possess an ability to detect magnetic fields. Furthermore, the review reported no evidence that EMF plays any role in species migration during their homeward migrations to coasts and estuaries. Once at the coast lamprey appear to locate streams using a three-phase strategy (Vrieze *et al*. 2011). The first phase is the initial vertical and horizontal exploration of shorelines. This brings the species close to the mouth of rivers. Once at a river mouth the species turn to face into oncoming currents (rheotaxis). The last phase involves using olfactory cues, whereby adult sea lampreys 'sniff out' rivers populated with juvenile lampreys (Bjerselius *et al*. 2000; Polkinghorne *et al*. 2001; Waterside Ecology 2017). Given the above, sea lamprey migration will not be significantly affected by the proposed development. In studies investigating the effect of EMF on the decapod crab *Cancer pagurus*, Scott *et al*. (2019) investigated reported crabs showed a clear attraction to EMF and significantly reduced their time spent roaming. Experiments have reported varied responses in elasmobranchs to EMF. For example, Gill *et al.* (2009) reported the lesser spotted dogfish (*Scyliorhinus canicula*) were more likely to be found close to the energized cable. The study also showed some thornback ray (*Raja*

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	clavata) individuals moved more in the vicinity of the EMF. Hutchison *et al.* (2018 and 2020) investigated the effect of EMF associated with high voltage cables on the decapod American lobster (*Homarus americanus*) and the elasmobranch Little skate (*Leucoraja erinacea*). The studies showed that when exposed to EMF American lobster exhibited a subtle change in exploratory behavioural activity while little skate exhibited a strong exploratory/ foraging behavioural activity. While the behavioural changes are likely to have biological relevance in terms of how the animals will move around and be distributed within a cable EMF zone, it is considered that EMFs did not constitute a barrier to movements across the cable for either lobsters or skates. Consequently, it can be concluded that EMF produced by the proposed development is unlikely to significantly affect decapod (e.g. crab, lobster) or elasmobranch species (e.g. dogfish, skate, ray). No data were found that marine mammals are negatively impacted by EMF. With regard to the nearest aquaculture site, the information provided by the Marine Institute is noted.
Marine Institute (MI) Observation 2 in light of Applicant's response of 08 June 2021 Having reviewed the response from the applicant, the Marine Institute had a number of observations: 1. The NIS is supposed to be a stand-alone document and should not have to rely on information derived from a communication during a separate licencing process. 2. Furthermore, it is important to note that in relation to the submission as it related to aquatic species, that the lack of evidence of impact is not evidence of no impact. While the Marine Institute accepts that, for some species, magnetic fields as navigational aids may be replaced by olfactory cues in riverine situations, this does not mean that the sensitivity to magnetic fields is disabled. 3. The Marine Institute suggests that the operators, if licenced, engage in research to address the issues raised in the attached (see Appendix 1)	The Applicant noted that, in line with its strategic commitment to update the EirGrid Evidence-Based Studies, to reflect marine receptors in 2023, EirGrid commits to engage with all relevant stakeholders, including the Marine Institute, in the coming years. The updates will include reviewing the evidence base for, and potential options to conduct primary research in, EMF. It is noted that, in their submission of 21 July 2021, the Marine Institute has stated that it is broadly satisfied with the response and have no further observations in relation to the Foreshore licencing process. EirGrid has no further response to make in this regard.

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reprint which have direct relevance to the issues highlighted. The recommendations therein will help identify (and model) specific interactions and behavioural modification (if any) between aquatic species and EMF. Notwithstanding and specifically in relation to the Foreshore licencing process, the Marine Institute was broadly satisfied with the response and had no further observation	
Marine Institute (MI) Observation 3 in light of Applicant's response of 23 August 2021 The Marine Institute welcomed the commitment for future research with regard to EMF and will engage where relevant. The Marine Institute had no more observations on this application	There were no further comments.
Environmental Protection Agency (EPA) In accordance with the requirement as set out the Foreshore Regulations 2011 (S.I. No. 353 of 2011), the Agency advised as follows: 1. The Agency notes from the Planning and Environmental Considerations Report (30th July 2020) submitted with the Foreshore application (page 6) that - "There are no planned dredging and/or 'Dumping at Sea' activities associated with the project. A Dumping at Sea permit is not required." Furthermore, the Natura Impact Statement (July 2020) notes on page 93 that "for the construction phase of the proposed project there will be no marine dredging or 'Dumping at Sea'" and has ruled out the potential for significant effects from the proposed project in combination with ongoing maintenance dredging activities in the Shannon estuary. 2. Shannon Foynes Port Company was granted a Dumping at Sea Permit, Reg. No. S0009-03, on 21st December 2020 for dumping at sea activities associated with maintenance dredging in the Shannon Estuary over the period 2020 - 2026. This permit authorises the loading of dredged material at Ted Russell Dock and approaches, Limerick and at Foynes Harbour and the dumping of the dredged material at three established dumping sites in the upper and lower Shannon Estuary.	The Applicant acknowledged the observations made by the Environmental Protection Agency and will ensure that the proposed development will not result in a contravention of the Water Framework Directive 2000/60/EC, Habitats Directive 92/43/EEC, Bathing Water Directive 73/160/EEC or Environmental Liabilities Directive 2004/35/EC.

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3. L&M Keating Maritime Limited was granted a Dumping at Sea Permit, Reg. No S0020-02, on 5th December 2017. This permit authorises plough dredging at Kilrush marina approach channel until 30th September 2024 to maintain sufficient draft for vessels using the marina. 4. Aughinish Alumina Limited was granted a Dumping at Sea Permit, Reg. No S0026-01, on 28th July 2016, which authorises plough dredging activities adjacent to the jetty at Aughinish until 31st August 2024 to maintain navigational depths and berthing access for ships. 5. All three permits and all associated application and enforcement documentation, including Annual Environmental Reports, are available to view on the Agency's website at the following web link: http://www.epa.ie/terminalfour/DaS/index.jsp The Agency would further advise: That the proposed activity shall not result in a contravention of the Water Framework Directive 2000/60/EC, Habitats Directive 92/43/EEC, Bathing Water Directive 73/160/EEC or Environmental Liabilities Directive 2004/35/EC	
Commissioners of Irish Lights (CIL) Irish Lights reviewed the application for the above development and had the following observations: In relation to mitigation aspects with respect to marine traffic, it is stated in the Planning and Environmental Considerations Report (PECR) Section 15 Summary of Mitigation Measures' (Material Aspects, Including Traffic, P255) that "Navigational impacts will be minimised through consultation with the Shannon Foynes Port Company (SFPC) and other stakeholders as part of the Foreshore Licence process. These will be stipulated in the granted Foreshore Licence process". No specific mention is made of any possible installation of aids to navigation, or consideration if this may be required. Irish Lights recommends that SFPC as the Local Lighthouse Authority be consulted specifically on any requirements for installation of aids to navigation which will require Statutory Sanction from Irish Lights.	The Applicant acknowledges the observations made by the Commissioner for Irish Lights. The Applicant has and will continue to engage with Shannon Foynes Port Company to agree mitigation with regard to traffic movements in advance of construction. The Applicant noted the charted anchorage area for smaller vessels at Glencloosagh Bay and will ensure that effects on the use of the anchorage area are minimised during construction.

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In relation to marine traffic movements in the estuary, the application and PECR note (section 14.2.2.1) approximately 1800 vessel movements annually, the majority of which are bulk carriers, cargo ships or chemical/oil tankers. The report notes that SFPC confirmed that there is "no defined navigational channel" and that the largest vessels tend to use the centre and northern parts of the estuary. Given the relatively narrow operational channel area for deep-draught vessels in this section of approximately 0.5NM/900m (due to the shallows to the west of Tarbert) and the requirement for vessels to maintain a safe distance of 500m from installation vessels, it will be important to manage and account for traffic movements during construction, particularly deep-draught vessels, so that safety of navigation is maintained. Irish Lights recommends that mitigation measures to account for traffic movements be agreed with SFPC in advance. The PECR notes that the Shannon Estuary is "predominantly a commercial estuary, with little recreational boats accessing the estuary". Nevertheless the applicant should be cognisant of the charted anchorage areas for smaller vessels at Glencloosagh Bay close to the existing 220kV cables immediately to the west of the southern landfall and how availability of this anchorage location for smaller vessels might be impacted by the works, particularly during the construction phase."	
Commission for the Regulation of Utilities (CRU) The CRU stated that it was aware of the project and the project is present in the latest version of EirGrid's transmission development plan (project no. CP0970). However, regarding EirGrid's foreshore application itself, the CRU did not have any comments.	The Applicant acknowledged the response from the Commission for the Regulation of Utilities.
Inland Fisheries Ireland (IFI) Observation 1 <u>Overview:</u> The proposed works involves the laying of 400kV underground cables across the Lower Shannon Estuary between the existing Moneypoint 400kV Electricity Substation in the townland of Carrowdotia South Co. Clare and the existing Kilpaddoge 220/110 kV Electricity Substation in the townland of Kilpaddoge, Co. Kerry. <u>IFI comment:</u> IFI noted the correspondence received to date in regard to this work. This application has a detailed mitigation measures for pollution and for the	The Applicant noted: <u>Eels</u> As eel is not a Qualifying Interest species for the Shannon SAC, it is not an issue that can be considered for the NIS. However, a number of studies have reported no evidence that EMF presents obstructions to eel migrations. Westerberg and Lagenfelt (2008) assessed migration behaviour of the European eel passing an underwater high voltage cable extending between the Swedish mainland and the island Öland. The study reported that while eel reduced its swimming speed when crossing the cable there was no evidence that the cable was acting as

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construction works. Section 3.6.2 of NIS details mitigation measures in terms of pollutants, sediment and biosecurity. If all mitigations measures are put in place this should reduce the risk of any incident affecting the estuarine environment. In terms of noise, while the NIS details no significant adverse effects of the noise to the diadromous species (salmon or lamprey) as species will move out of the vicinity. These species are migratory and will potentially need to pass through the site on the migrations either upstream or downstream. The NIS document does not mention the European Eel which is protected under Eel Regulation 1100/2007 and should be taken into account, glass eels will be arriving in December-February, but a cohort of the population will remain in the estuary for the duration of the continental phase of lifecycle, while silver eels will be migrating out to sea from August to January. While the reference to the Habitats Annex II species is noted there are other fish species inhabiting the vicinity of the works sites and IFI would point 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 relate to fish species of conservation significance and of leisure angling significance all of which constitute part of IFI's brief. It is recommended to 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. We would like to clarify how the construction works will progress across the channel. It will be important to ensure that there is free passage for fish species along one bank to allow species migrating up and	an obstruction to migration. Similarly, a two year field study of migrating Silver eels passing the Baltic Cable showed the species crossed the cable with the same probability as if it were absent. While a number of individuals changed their course slightly when passing the cable it was concluded that the cable did not pose a threat to migration. Given the above, it can be concluded that European eel migration will not be significantly affected by the proposed development. <u>Soft start/ramp up procedures</u> Trenching vessels and associated support vessels e.g. tugs will generate noise in the water even before trenching or tunnelling commences and these noise sources will act as soft start/ramp up noises. Where possible, trenching and tunnelling equipment will be started in sequence so that there will be gradual increase of noise. <u>SFPA and spawning/nursery areas</u> The SFPA was contacted and commented that as the area is neither a spawning nor a nursery site, it does not require an assessment for same.

Statutory Body	Applicant's Response
downstream. While some works will take place during the 7am - 7pm time period others will be over 24 hours which could interfere with fish migrations. We note the additional information supplied to An Bord Pleanala in relation to the electromagnetic field and the documented effects on different fish species. The local IFI office in Limerick should be notified one (1) week in advance of the commencement of works	
Observations received from Inland Fisheries Ireland (IFI) Observation 2 Inland Fisheries Ireland (IFI) considered the application and had the following further observations and recommendations to make. IFI acknowledged that considerable pre-planning consultation has taken place between the project proponents and Inland Fisheries Ireland and that the outcome of this consultation is reflected throughout the CEMP and NIS. During construction, IFI require that: • All discharges to and through the surface water collection and disposal system to groundwater and thence to surface water shall not be of environmental significance. • All mitigation measures identified in the CEMP and NIS are implemented in full. • IFI recommend that all marine activities begin with a ramp-up or 'soft-start' procedure to more fully mitigate the impact of any noise on the movement of fish species through the works area. • There shall be no permitted discharges to surface water resources of contaminated water or surface water run-off from the development. • Servicing including refuelling of plant and equipment shall only be undertaken on impermeable hard standing areas. • All plant and equipment used within the subject site shall carry spill clean-up kits and not be used or operated if there is evidence of leakage or damaged oil seals. • There shall be no discharge during the construction period of cementitious materials or residues thereof to the surface water or drainage network.	The Applicant acknowledged the recommendations made by Inland Fisheries Ireland and accepted the recommendations made by Inland Fisheries Ireland. Prior to commencing any work with subsea equipment, where such equipment has adjustable power levels the following soft start procedure will be conducted: - 1. Conduct MMO watch as per the marine mammal observation plan in place. 2. Once observation watch has been completed inform onboard MMO of intention to soft start subsea system. 3. Turn on the subsea equipment. 4. Select low power setting initially. 5. Over the next 5 minutes gradually increase power to working power level.

Statutory Body	Applicant's Response
• When cast-in-place concrete is required, all works shall be undertaken in the dry and effectively isolated from entering any receiving surface or foul sewers for a period sufficient to cure the concrete. • Concrete delivery vehicles shall be precluded from washing out at locations that could result in a discharge to the surface or foul sewers. • Where cement or lime is stored on site, it shall be held in a dry secure area. • All oils and fuels used on or within the site shall be stored in secure bunded areas and servicing including refuelling of plant and equipment shall only be undertaken on impermeable hard standing areas. • Where temporary diesel or petrol driven pumps are used within the site, they shall be positioned within portable bunded units. • Any silt curtains to be deployed should comply with the relevant European Standard CE 1137-CPR-0613/29. In relation to the Emergency Response Plan, IFI suggest that all staff working in the vicinity of watercourses are aware of procedures to prevent silt or other pollutants from reaching watercourses. Sufficient materials to aid in diversion/containment on any such spillage should be readily available and stored at close distance. Contact details for local IFI staff can be supplied to the contractor once appointed to be added to the Emergency Response Manual. IFI will require consultation on the final CEMP, EOP and specific works method statements with the contractor as appointed	
Inland Fisheries Ireland (IFI) Observation 3 in light of applicant's response of 08 June. IFI was happy with the response and have no further comments to make	The Applicant had no further comment to make in response to same.
Department of Housing, Local Government and Heritage Water and Marine Advisor (WMA) <u>Project Description:</u> As part of the Cross Shannon Cable Project EirGrid propose laying 4 no. 2.8km long 400kV Electricity Subsea Cables across the Shannon Estuary between Moneypoint Co. Clare and Kilpaddoge, Co Kerry. The cables will be installed by standard installation techniques, which in the most part involves them being	The Applicant acknowledged the recommendations made by the Water and Marine Advisory Unit and accepted the recommendations made by the Water and Marine Advisory Unit.

Statutory Body	Applicant's Response
buried in the seabed. Two (2) no fibre optic cables will be included with each of the 400 kV cables, 1 of the fibre optic cables for communication links between both substations which will be integrated into the 400 kV cables and the second fibre optic cable for maintenance and cable monitoring which will be an armoured cable wrapped around the 400 kV cable. The associated works will include the reinforcement of the ground beneath and around the cables by various methods including concrete ramps, infilling with gravel/concrete, articulated pipes and rock armour protection. Site Inspection: The site of the southern landfall was inspected on 15 October 2020 and the site of the northern landfall on 03 December 2020. The northern landfall is directly adjacent to the Moneypoint Power station and an existing cable crossing landfall similar to the one now proposed. The foreshore at this location is very inaccessible and rocky. The southern landfall is at Kilpaddoge north of the under construction Electricity Substation. The shore and foreshore at Kilpaddoge is a cobble beach and is accessible to public from a public road 1km to the east. Assessment: The foreshore of the Shannon Estuary is Stated owned and the works as proposed are part of EirGrid's development of the national electricity transmission infrastructure and so are in the public interest. Considering the shore and foreshore on the southern landfall is a cobble beach and assessable to the public it is important that when completed the proposed works do not impede access along the shore or foreshore and following the works the foreshore should be restored to a natural like condition. The works if completed as proposed and in compliance with the conditions set out below will not have significant adverse impacts on navigation, fisheries or the environment. Recommendation: The Water and Marine Advisory Unit (WMAU) recommends approval of the application for a foreshore licence for 4 no. 400kV Electricity Subsea Cables across the Shannon Estuary between Moneypoint Co. Clare and Kilpaddoge, Co Kerry subject to the following conditions:	

Statutory Body	Applicant's Response
• The Drawing Titled "Foreshore Licence Map", Drawing No: 379408-MMD-XX-00-GIS-N-1009 Rev. 2 Dated: 01/07/2020 should be attached to and referenced in the licence document • Following burial of the cables on the foreshore at the southern landfall the foreshore shall be back filled with native beach material at pre works beach grade level and foreshore restored to natural like condition so as to not impede public access along the foreshore and to reduce the visual impact of the works. • The works shall be conducted in accordance with documents and drawings submitted with the application. • The Department shall be notified 2 weeks prior to any works proceeding	
Underwater Archaeology Unit (UAU) The UAU noted the response from the Applicant and FI as submitted to ABP. The submission made as FI in response to the National Monuments Service's (NMS) requirements is confusing and contradictory. <u>Dive Survey/Archaeological Assessment: SS12</u>: It is unclear how the recommended exclusion zone of 100m can be narrowed to 60m until the archaeological assessment has been undertaken to inform on whether the potential anomaly SS12 is cultural in nature or not. EirGrid suggests that the depth of the water in the area precludes diving as it is at the safety limits and propose further remote sensing survey (without specifying what type of remote sensing will be employed). However, at the end of the paragraph, the submission states that a hand-held metal detection survey will accompany the dive survey. It is therefore unclear if an archaeological dive survey will be carried out or not. While remote sensing can be undertaken again to more closely assess this area, our previous recommendations (see below) as issued remain unchanged, i.e. for visual survey of SS12. <u>Dive Survey and Archaeological Testing: M10 & S1</u>: The response as submitted as FI by EirGrid suggests that archaeological testing can be done via remote sensing survey – which is an impossibility as both activities are completely different. It refers to the proposed survey methodology for SSI2, as recommended by EirGrid. This is contradictory as remote sensing is, as the name suggests – remote, non-invasive assessment, while archaeological testing requires physical excavation by the archaeologist to	The Applicant noted that the detailed design for the landfall and cable routes will be developed following the appointment of a Contractor. The archaeological testing at the both landfalls and in the vicinity of magnetometer target M10 will be undertaken following the development of the detailed design and prior to commencement of construction. The Applicant accepted the recommendations of the UAU and will continue to liaise with the UAU throughout the project.

Statutory Body	Applicant's Response
assess and interpret directly the area under question. It is therefore also unclear as stated by EirGrid whether archaeological testing will be carried out, though there is reference to '…proposed test trenches for both sites will be in included in a licence Application Report' to NMS. As above, if further geophysical survey is considered then that is fine, but our requirements for archaeological testing remains unchanged (see below). To reiterate NMS's and Kerry County Council's Archaeologist's observations, as issued previously: this is an area of extremely high archaeological potential and therefore requires more detailed archaeological assessment in the form of further archaeological assessment and testing. <u>Archaeological dive survey & Archaeological Testing</u>: It is stated that the report on the results of further archaeological assessment and testing will be submitted 'in advance of any proposed works taking place'. As previously recommended by NMS: It is strongly advised that the archaeological dive survey and archaeological testing is carried out in advance of the works contractor being engaged, to ensure that results inform final details for cable placement/completion, particularly if significant archaeological remains are identified, and thus prevent any risk of delays to works when plant and machinery are on site. It should be borne in mind that should significant archaeological remains be identified, further archaeological mitigation may be required by way or preservation in situ/avoidance or full archaeological excavation. As previously stated the National Monuments Service has no objections to the foreshore licence being granted once the following is included as conditions of any grant of permission: <u>Dive Survey and Archaeological Testing: M10 & S1</u>: A 100m exclusion zone shall remain in place until such time as SS12 has been fully and more closely assessed. Based on the results submitted to and consideration by the NMS of the results, the exclusion zone may remain in place (i.e. 100m), may be reduced (to 60m) or indeed prove to be unnecessary should the anomaly not be of cultural significance.	

Statutory Body	Applicant's Response
If, on safety grounds, there cannot be an archaeological dive survey, then an ROV survey should be undertaken to ensure the anomaly is visualised and can be fully assessed in real time by the archaeologist engaged for the project. The ROV survey shall assess the wider area around SS12 to ensure there is no associated material in the immediate area. The archaeologist should be on board the vessel when the ROV survey is being undertaken to ensure they can assess the results in real time. <u>Dive Survey and Archaeological Testing: M10 & S1</u>: A detailed plan for the archaeological testing in the area of the south landing S1 is to form part of the licence application and shall follow the route of the cables to the existing substation. The area where the localised magnetometer anomalies M10 are located on the nearshore/onshore area at Moneypoint for the northern landing N2 to be the subject to archaeological testing. The location, nature and extent of all test trenches should be provided and sufficient trenches should be put in place to assess fully the area from the foreshore (at low water) and inshore for N2 to identify what the magnetometer anomalies are on the foreshore (at low water) to the green field areas and on to the substation for S2 to ensure the line of the cables are fully archaeologically tested. The methodology submitted should include a detailed finds retrieval strategy. <u>Archaeological Dive and Testing Report:</u> Once all surveys and testing have been completed, the full information should be compiled into a Report submitted to the Underwater Archaeology Unit, National Monuments Service for review and further comment in advance of any works taking place. The applicant shall be prepared to be advised by the Department in this regard	

Statutory Body	Applicant's Response
Department of Agriculture, Food and the Marine (DAFM) The DAFM had no specific conditions to be included. BIM have expressed concern as it appears the proposed activity may cut through the eastern end of the oyster fishery order T08/004BOFO, which is owned by Atlantic Shellfish Ltd. This needs to be brought to the attention of EirGrid and BIM suggest that the EIRGRID Project Liaison Officer make contact with local stakeholders in this regard	The Applicant drew attention to Table 5.1 of the Planning and Environmental Considerations Report that supports the application. As noted therein, EirGrid has engaged with Atlantic Shellfish Ltd since 2017 in respect of the proposals. It is however noted that Atlantic Shellfish Ltd has previously advised EirGrid that in their opinion the proposals will not cause any significant harm to their oyster beds in the area. The applicant will continue to engage with relevant stakeholders during construction and operation.
Irish Coast Guard (ICG) The Irish Coast Guard drew attention to the provisions of the National Maritime Oil/HNS Spill Contingency Plan (and its suite of standard operation procedures), June 2021 and the associated national legislation articulated in the Plan. Specifically in terms of contingency preparedness and planning for emergency response and environmental protection for offshore/at sea operations.	The Applicant acknowledged the Irish Coast Guard recommendations with regard to the National Maritime Oil/HNS Spill Contingency Plan and would seek to adhere to same.
Sea Fisheries Protection Authority (SFPA) Proposed electricity transmission cables (Cross Shannon Cable Project), which includes the laying of 400kV underground cables across the lower Shannon estuary from Moneypoint, Co. Clare and Kilpaddoge, Co. Kerry. Three (3) elements make up the proposed project, connection of the cable at Moneypoint, laying the cable and connection to Kilpaddoge. Within Part 4 (pre-application process) of the application form submitted it is recorded that the SFPA advised that the area is not within their remit and directed the project to IFI for comment. The location of the proposed development is in the lower Shannon Estuary and therefore unlikely to disrupt any wild fisheries in the immediate area. There is a presumed dormant, licenced aquaculture site for oysters on the Clare side of the development (Licence number T08/004BO). The applicant has stated that they are investigating the oyster fishery order and if any plans for developing the aquaculture site. The shellfish production area of Ballylongford is outside and seaward of the proposed development area and should not be affected by the cable laying.	The Applicant acknowledged the response of the SFPA and will report all spillages and pollution events which may cause contamination of seafood to the Dingle SFPA office.

Statutory Body	Applicant's Response
All spillages and pollution events at the development sites which may cause potential contamination of seafood are to be immediately reported to the Dingle SFPA office	
Met Eireann (ME) After studying the application, ME did not envisaged that this project would have any negative impact on the Met Eireann observational infrastructure	The Applicant acknowledged the response from Met Eireann.
Health and Safety Authority (HSA) The Health and Safety Authority, in its role as the Central Competent Authority under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015, had advised An Bord Pleanala that it does not advise against the granting of planning permission	The Applicant acknowledged the response from the Health and Safety Authority.
Bord Iascaigh Mhara (BIM) BIM, Ireland's Seafood development Agency wished to use the opportunity to ensure that the current and future needs and concerns of the seafood sector are appropriately considered. BIM noted that fisheries and aquaculture interests had already been identified. The proposed route of the cable intersects with the corner of an oyster fishery order and the proposed route is approximately 5.5km from the nearest aquaculture licence. BIM requested that consultation is carried out with the aquaculture operators in the area and that operators are made aware of construction works and timings in advance of their commencement. It is noted that consultation has been held with Atlantic Shellfish ltd, who hold the oyster fishery order. Should you require assistance with any further engagement, BIM can provide assistance. Construction and excavation works associated with laying the cables and reinforcement of the ground beneath and around the cables may have the potential for suspension of sediments which together with any pollutants within them, could have a negative impact on filter feeding oysters	The Applicant will consult with the aquaculture operators in the area and ensure that operators will be made aware of construction works and timings in advance of their commencement.
Sustainable Energy Authority of Ireland (SEAI) With regards to this application which is for the installation of 4 x 400 KV submarine cables across the Shannon Estuary from Moneypoint to Killpaddoge in Co Kerry, SERAI supported the development as it will allow for improved	The Applicant had no further comment to make in response to same.

Statutory Body	Applicant's Response
export capability from wind generation projects in South West Kerry into the existing 400KV network. Such work is of benefit to the South West and will ensure more efficient transmission of renewable generation and prevent local constraints on the system	
National Parks and Wildlife Service (NPWS) The NPWS had no comment to make on this application	The Applicant had no comment.

1.4 Response to Request for Further Information

Further information was requested from the applicant under Regulation 42(3)(b) of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended) regarding certain aspects of the screening process. The questions and applicant's responses along with reviewer commentary are given in Section 3.7.

1.5 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.*

Given that an application for statutory approval has also been made to An Bord Pleanála with respect to the project, the following is also relevant:

> *42. (21)(a) Where a public authority, referred to in this paragraph as "the first authority", has carried out a screening for Appropriate Assessment or an Appropriate Assessment in relation to a plan or project, any other public authority, referred to in this Regulation as "the second authority", that is required to carry out a screening for Appropriate Assessment or an Appropriate Assessment of the same plan or project shall take account of the screening for Appropriate Assessment or Appropriate Assessment of the first authority in relation to that plan or project, and of any information, including a Natura Impact Statement that was prepared for consideration by the first authority or another second authority in relation to the plan or project.*

(b) In taking account of a screening for Appropriate Assessment or Appropriate Assessment in relation to a plan or project and of a Natura Impact Statement, the second authority shall consider the extent to which the scope of that screening for Appropriate Assessment or Appropriate Assessment or Natura Impact Statement covers the issues that would be required to be addressed by the second authority in a screening for Appropriate Assessment or Appropriate Assessment of the plan or project in view of the scope of the consent to be given by it, and shall identify any issues that have not, in that regard, been adequately addressed.

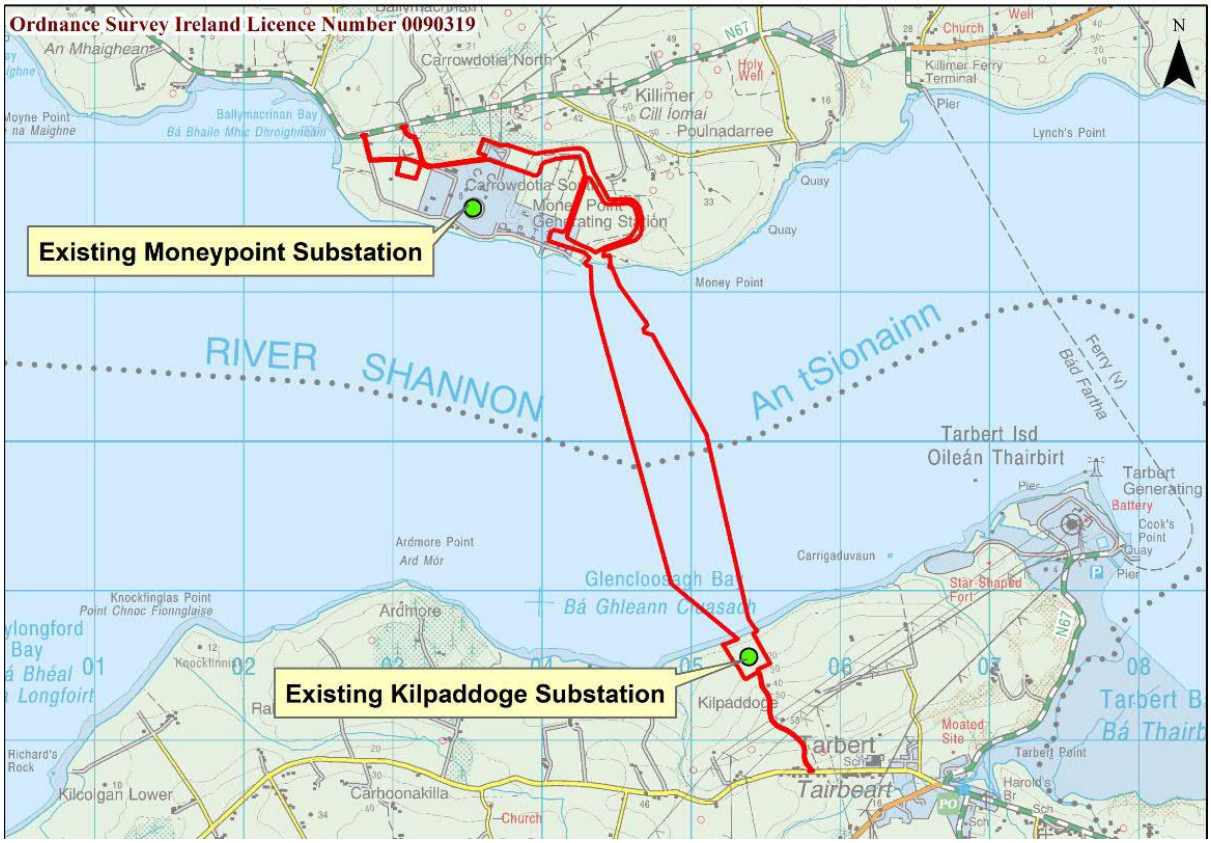
(c) Subject to subparagraph (b) and without prejudice to its right to request all such information as it considers necessary to carry out a screening for Appropriate Assessment or Appropriate Assessment, the second authority may limit its requirement for information, including a Natura Impact Statement, to those issues that it determines have not been adequately addressed for the purposes of the second authority in the process of screening for Appropriate Assessment and Appropriate Assessment by the first authority or by another second authority.

SECTION 2 - DESCRIPTION OF PROPOSED WORKS

2.1 Proposed Project Location and Description

The Cross-Shannon Cable 400 kV Project involves the laying of four new cables across the Shannon Estuary (in the seabed) between the Moneypoint 400 kV Electricity Substation in the townland of Carrowdotia South County Clare and Kilpaddoge 220/110 kV Electricity Substation in the townland of Kilpaddoge County Kerry. The connection at Moneypoint will be at the existing substation on ESB lands. The connection at Kilpaddoge requires an extension of 5,500m^2 to the existing substation on ESB lands (Figure 2.1).

Figure 2.1: Proposed Project Location



2.2 Route Description

The proposed development mainly consists of:

- An onshore development comprising 2 main elements: connection at Moneypoint Substation and connection at Kilpaddoge Substation;
- A submarine development, consisting of the laying of four 400 kV submarine cables across the Lower Shannon Estuary. The Foreshore consent application FS007083 refers to this part of the proposed development, specifically covering the impacted sites below the bed and shore, below the line of high-water of ordinary or medium tides. The Foreshore Licence Area (98.15 ha) is highlighted in red on Figure 2.2 which also shows the proposed submarine cable corridor.

Figure 2.2: Foreshore Licence Area

2.2.1 Onshore Development

The following information is provided as context as with respect to onshore development, only the cable landfalls on either side of the estuary is subject to foreshore consent.

Connection at Moneypoint Substation

Moneypoint Electricity Generating Station is an existing operational coal fired power station which consists of three generators to produce electricity to supply the main transmission network. Moneypoint 400 kV substation is a Gas Insulated Switchgear (GIS) type substation and is located inside the existing operational Moneypoint Electricity Generating Station. The substation is the marshalling point for the electricity, and it acts as a node on the transmission network.

The landfall generally comprises concrete cable troughing, associated civil works and transition joint bays. The joint bays enclose the connections made between the land-based cables and the submarine cables. The proposed northern landfall is located to the south of the main coal yard / ash storage area on third party lands.

The transition area, comprising four individual transition joint bays, each with the approximate footprint of 10m (length), 2.5m (width) and 2m (depth). This arrangement also includes a land submarine transition joint bay for the spare submarine cable.

The jointing bay will be constructed with concrete floor and sidewalls. Once the cables are connected to the relevant joints within the jointing bay, compact cement-bound sand is put into

the bay to surround the cables and joints. Additional sand and excavated material is then backfilled into the bay and the bay is subsequently covered over.

The geology of the nearshore approaches / intertidal area will determine how the cables will be installed into the transition joint bay. Usually, the cables are brought ashore by an open cut trench requiring access for excavation equipment. Where a rock shelf is present, further civil works will be required, taking the form of gabion bags filled with stone and revetments to support the approach by securing and protecting the cable installation. Cylindrical metallic cable protectors will also be installed as necessary at these locations to provide mechanical protection to the cables.

Connection at Kilpaddoge Substation

Kilpaddoge station is a relatively newly constructed 220 / 110 kV GIS substation to the south of the Shannon Estuary in County Kerry. In order for the 400 kV cable circuit to connect to the station at Kilpaddoge a power transformer is required. This transformer is a piece of outdoor electrical plant that is used to change the system voltage from 400 kV to 220 kV, which is the operating voltage at Kilpaddoge. An extension to the existing Kilpaddoge Electrical Substation of approximately 5,500m^2 will be required to facilitate new 400 /220 kV AIS equipment and associated compound.

The proposed 400 kV cable circuit will run south from the southern landfall to the existing Kilpaddoge 220 kV GIS substation via a 400 kV AIS bay and a 400 / 220 kV power transformer. The proposed landfall is located approximately 60m north of the existing substation. No specific details are provided by the applicant on the Kilpaddoge landfall.

2.2.2 Submarine / River Shannon Crossing

The new 400 kV submarine cable route runs from a landfall adjacent to the Moneypoint Electricity Generating Station on the north side of the Shannon Estuary to a landfall at Glencloosagh Bay, directly to north of Kilpaddoge substation on the south side. The overall estimated submarine cable route length is approximately 2.8km. The area of the proposed submarine cable corridor between the high-water mark of ordinary or medium tides (MHWM) on each shoreline (for which this application for consent is applied) is approximately 0.737km^2.

A communication link will also be provided between both substations, this will take the form of two fibre optic cables laid alongside or integrated into the proposed 400 kV cables. Environmental constraints, including the archaeological potential within the study area, were considered in parallel with the design optioneering process in determining the proposed route corridor.

The riverbed varies along the proposed route alignment from fine to coarse gravelly sand to fine sand. The gravelly clay is limited to the near shore areas. The proposed installation techniques (see below) are suitable given the sediment conditions encountered along the corridor.

2.3 Installation of Submarine Cables

2.3.1 Plant and equipment

The proposed submarine equipment includes:

- Primary Cable Laying Barge (CLB) or Cable Laying Vessel (CLV)
- Cable floatation devices for submarine-landfall pull in

- Cable burial tool
- Pre-lay Grapnel (PLG) and launch vessel
- Mass Flow Excavator (MFE) tool and launch vessel
- Post-lay trench jetting tool
- Support / guard vessel(s)
- Rock protection installation vessel
- Cylindrical cable protection.

It is anticipated that the launch vessel for the PLG and MFE will be the same vessel.

2.3.2 Installation sequence

The proposed installation sequence is summarised below. The actual methods and sequence of the cable installation are subject to detailed design, pre-construction surveys and review by stakeholders, authorities and contractors:

1. Moneypoint and Kilpaddoge landfall works (excavation and civil works). Site preparation works including civil and earthworks are required at both landfalls to re-profile the existing coastline to the final design profile to enable the cable pull in to take place. Following cable installation at Moneypoint, the concrete slipway structure will be backfilled (where appropriate) and encased by a pre-cast concrete slab that will sit on top of the backfilled material. Rock protection will be installed in front of the coastline at the toe of the concrete slipway to mitigate the risk of erosion underlying or outflanking the new structure. Earthworks at Kilpaddoge will likely involve installation of rock / gravel filled gabion bags or backfill material to prevent deep burial of the cable that could induce the risk of cable de-rating. Following installation of the cables, the existing coastline will be reinstated to its original profile and level. Rock protection may be installed in front of the coastline;

2. Route clearance (pre-lay grapnel run) along all four cable alignments;

3. Seabed preparation works along all four cable alignments. Seabed slopes between 10-25 degrees are observed in marine survey data near to the northern landfall. The steepest slopes angles occur for approximately 25-50m, between the 5m and 10m bathymetry contour. At these locations, seabed preparational works, such as rock filter bag placement, may be required to reduce the slope angles for cable installation purposes;

4. Submarine works for each cable alignment (assume starting with Cable No.1, most westerly alignment):
    a. Sand wave re-profiling/dispersal by Mass Flow Excavation (MFE). A MFE tool will be used to flatten sand waves with amplitudes of more than 0.5m and allow a cable burial tool to bury the cable to a controlled and determined depth. Sand wave reprofiling is required along approximately a 2km chainage of each cable alignment.
    b. Post-MFE route clearance (secondary pre-lay grapnel run) to clear any obstructions which may have been exposed during the use of the MFE tool.
    c. Moneypoint landfall cable pull-in. The CLB/CLV will start from a position approximately over the 15m bathymetry contour (less than 100m from the shoreline at Moneypoint). A messenger wire will be transported by a support vessel to shore and passed through the cable quadrant, over onshore cable rollers, and up to the cable winch. The winch will then pull the cable from the CLB/CLV to beyond the transition joint bay (TJB) at the top of the cliff. Here,

the cable armouring is removed and secured to an armour clamp which will likely be incorporated into the seaward concrete wall of the TJB (subject to the Contractors design).

d. Submarine cable installation. A number of techniques may be employed including using a cable burial tool or jetting tool to install the cable (as described in Section 2.2.3.4 of the AA Screening and NIS report.

5. Repeat step 4 for cable no.2, no.3 and no.4. All sequences detailed in steps 4 above will be repeated until all four cables have been installed to KP2.2[1] and pulled ashore to Kilpaddoge.

6. Post lay submarine cable installation for all four cables. After all four cables have been installed (buried) between KP0.0 and 2.2, post-lay burial of all four cables between KP2.2 and 2.8 will take place. A cable burial tool or jetting tool, either remotely operated (ROV) or pulled by a combination of the onshore winch and marine vessel.

7. Landfall and submarine cable protection installation for all four cable alignments. Additional protection over the buried in submarine works areas (below LAT) will be installed by a specialist marine contractor with a marine vessel. Based on the preliminary burial risk assessment and the results of the marine surveys, approximately 1km of additional protection is identified as required at the approach to northern landfall, near the centre of the channel and southern landfall. Local rock supplies will be used as the priority but imported rock may be necessary. In either case it would be common practice that the rock grade, quality is screened and tested such that it meets the design specification as defined at the detailed design stage. A rock specification will ensure that fines are removed, and rock is washed if necessary.

8. Post construction survey campaigns (cable burial depth and bathymetric surveys) to confirm the target burial depth has been achieved. Future marine surveys will assist in monitoring the performance of the cables over the life of the new asset.

2.3.3 Duration of works

Subject to the grant of statutory approvals, it is programmed that construction will commence in 2022, for it to become fully operational by the end of 2023.

For the submarine development, the cable installation within the Shannon Estuary is expected to take approximately three weeks to complete. Each cable installation run is anticipated to take approximately 3-5 days to complete. These works will be carried out seven days a week 24 hours a day. The duration of the works is indicative only, safety requirements for the installation operations / procedures and weather condition may ultimately dictate the final programme. Also, works associated with the submarine cable installation will be carried out outside of the peak dolphin calving season (August) depending on weather conditions.

2.4 Operation of the Cables

If a fault/break is caused to a cable, a repair operation would be undertaken by a cable vessel, retrieving the faulted section of cable to the vessel and repairing on board. The repaired cable would then be returned and reburied in the seabed, using the ROV mounted cable burial technique, to the approximate original location.

[1] The applicant's document uses chainage to describe the horizontal distance along the cable routes, starting at KP0.0 at Moneypoint, and ending at KP2.8 at Kilpaddoge.

2.5 Decommissioning of the Cables

Following the guidelines from the Commission for Regulation of Utilities (CRU) on decommissioning of submarine cables, typically such assets have an operational lifetime of at least 50 years. Depending on the results of the regular maintenance surveys carried out during the project operation, an exact timing for the decommissioning will be determined.

When decommissioning the sub-marine development, the cables will be disconnected at the landward joints and the cables will be left in the seabed. The sea protection rocks overlying the cables will not be recovered. The land-based transition joint pits are also to be left in situ.

2.6 Review of proposed works

EC (2002, 2021) guidance indicates that a project description should identify all those elements of the project, alone or in combination with other projects or plans, that have the potential for having significant effects on the Natura 2000 site. To this end, the guidance (EC 2021) provides an indicative list of the key parameters of the plan or project to be identified. Table 2.14 of the AA Screening and NIS provides relevant information.

Size (e.g. in relation to direct land-take)	Yes: The area of the proposed submarine cable corridor is detailed in Section 2.2.2 above.
Overall affected area including the area affected by indirect impacts (e.g. noise, turbidity, vibrations)	Yes although the definition of the project's ZoI often not clear.
Physical changes in the environment (e.g. modification of riverbeds or morphology of other water bodies, changes in the density of forest cover)	Yes: The potential physical changes to the environment from the proposed cable installation and landfall construction are summarised in Section 2.2 and 2.3.
Changes in the intensity of an existing pressure (e.g. increase in noise, pollution or traffic);	Yes. Small and temporary increase in vessel traffic within the relevant sites and related sources of effect including noise.
Resource requirements (e.g. water abstraction, mineral extraction);	Yes: Where ground conditions along the cable route prevent the target burial depth being achieved, addition protection will be provide to the cables by rock placement, installation of concrete mattresses or rock filter bags.
Emissions (e.g. nitrogen deposition) and waste (and whether they are disposed of on land, water or in the air)	Yes. Atmospheric and noise emissions from onshore construction equipment, dumper trucks, plant, and offshore vessels and cable laying equipment.
Transportation requirements (e.g. access roads)	Yes. Excavation of trenches across ESB held lands and at the foreshore for the cable installation. Excavation/ reprofiling the upper shorelines/ cliff edges. Where possible excavated material will be reused as backfill on site. Excavated material not reused will be taken from site using dumper trucks for disposal at licenced facilities.
Duration of construction, operation, decommissioning, etc.	Yes. Section 2.3.3 above.

Temporal aspects (timing of the different stages of a plan or project)	Yes. Section 2.2.4.1 of the AA Screening and NIS provides an outline construction schedule and timing of works.
Distance from Natura 2000 sites and in particular from their designating features	Yes. See Section 3 of this report.
Cumulative impacts with other projects or plans	Yes addressed in Section 4.3 of this report.

SECTION 3 - STAGE 1 SCREENING FOR APPROPRIATE ASSESSMENT

3.1 Basis for screening the project

Article 6(3) of the Habitats Directive indicates 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*[2]*, 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*." These provisions are transposed under regulation 42 of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended).

The project, as defined in Section 2, is not directly connected with the management of a Natura 2000 site, and under the provisions of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended), and the Competent Authority (in this case the Department of Housing, Local Government and Heritage) must therefore determine whether an Appropriate Assessment is required.

3.2 Identification of sources of impact

The applicant has used a source-pathway-receptor approach for screening; providing details of what they consider to be the potential sources of impacts of the proposed works (impact mechanisms) and whether there was connectivity (impact pathway) between a conservation feature and the impact mechanism to identify relevant sites (Section 3.3).

The applicant indicated that their assessment of project impact sources considered all relevant aspects of the proposed project that had the potential to directly or indirectly affect relevant qualifying interests of Natura 2000 sites. The applicant noted they used the Zone of Influence (ZoI) approach following DEHLG (2009), applying it on a case by case basis, taking into account the project location relative to habitats, non-mobile species, foraging distances, migration routes, breeding areas, and potential influences on species behaviour and prey species. While this approach is accepted to be appropriate in determining the sites and qualifying interests of importance to the AA screening, the applicant's report does not provide further detail on, for example, the range of foraging or migratory routes and breeding areas considered, and what specific ZoI were applied for any particular project/species combination. The applicant separated those activities with the potential to affect conservation features spatially into two work areas:

- onshore activities: pre-construction and civil works
- marine activities: intertidal and subtidal cable installation

With the exception of a small area of works on the northern landfall at Moneypoint the majority of onshore works occur within ESB owned lands and adjacent to their existing facilities on the northern shore of the Shannon.

[2] Article 6(4) relates to plans or projects which must be undertaken despite identification of an assessment determining a negative effect on a given site due to imperative reasons of overriding public interest (IROPI), including those of a social or economic nature. Suitable compensatory measures are required to maintain the coherence of the network should such a case be made.

Given the nature of the proposed onshore and marine activities, and the potential conservation features in the Shannon estuary area, the applicant identified the potential sources of impact as:

Activities associated with onshore pre-construction
These may result in the release of sediment, chemicals or other waste material pollution or invasive plant species during construction periods. No further information on the nature or volume of sediment, chemicals or waste materials that could be released was provided.

Vessel noise and construction noise disturbance
Based on previous similar works in the Shannon, it is anticipated that a CLB/ CLV vessel of ca. 125m in length will be employed to conduct the cable laying. Other project vessels that will be used include a launch vessel and guard/ support vessel(s). Vessel noise is a combination of tonal sounds at specific frequencies (e.g. propeller blade rotational frequency and its harmonics) and broadband noise (Vella *et al*. 2001). Propeller cavitation noise is the primary source of sound from underway vessels, whilst noise from propulsion machinery originates inside a vessel and reaches the water via the vessel hull. Noise from shipping is roughly related to vessel size, larger ships have larger, slower rotating propellers, which produce louder, lower frequency sounds (SMRU 2001).

Overall, vessel noise covers a wide range of frequencies from 10Hz to 10kHz. A typical 12m fishing vessel moving at 7 knots will have a peak frequency of 300 Hz with sound pressure level of 150 dB re 1 µPa at 1 m (DAHG 2014). Several studies have described and reviewed underwater sounds from a variety of larger commercial ships in transit (e.g. OSPAR 2009, Bassett *et al*. 2012, McKenna *et al*. 2012, Veirs *et al*. 2016). In general, support and supply vessels (50-100m) are expected to have broadband source levels in the range 165-180dB re 1µPa@1m, with the majority of energy below 1kHz (OSPAR 2009). Larger vessels of 100-300m length, including tankers, bulk carriers and container ships, produce higher source levels generally in the range of ca. 175-190 dB re1 µPa2 (OSPAR 2009, McKenna *et al*. 2012). While most energy from these larger vessels is below 200Hz, median received levels above those of ambient levels (+ 5-13 dB) have also been reported at higher frequencies of 10,000-40,000Hz up to a distance of 3km from the source (Veirs *et al*. 2016). Of potential relevance, 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).

These source levels are below the proposed injury threshold criteria (PTS) for non-impulsive noise for high frequency cetaceans (which includes common bottlenose dolphin, 198 dB re 1 µPa²s) (Southall *et al*. 2019). There is potential for some behavioural disturbance of common bottlenose dolphin in response to vessel noise (review Erbe *et al.* 2019). Whilst the area of potential disturbance will be highly localised (i.e. within a few hundred metres radius), transient and of short overall duration, the relatively narrow channel and slow-moving installation vessel could impact the movement of dolphins along the estuary, particularly on the northern side which appears more suitable for dolphins (Figure 3.8 of the AA Screening and NIS report).

According to the SA Shannon Foynes Port Company (SFPC) approximately 1,800 vessel movements are made within the estuary, equating to 900 different AIS (automatic identification system) tracked vessels travelling into the estuary annually. Cargo in excess of 12 million tonnes (approximately 20% of goods tonnage handled at national ports in Ireland) is delivered to the six main facilities. Given the level of vessel traffic in the area, the temporary presence of the project vessels (i.e. CLB/ CLV, launch vessel, guard/ support vessel, for up to three

weeks) will not significantly increase the level of overall vessel activity or vessel engine noise in the area.

Vessel collision
During operations the vessels will be travelling at low speeds below which most lethal and serious injuries occur to marine mammals as a result of collision (Laist *et al*. 2001). It is very unlikely that a mammal will collide with the slow moving vessel(s).

Construction noise disturbance
Associated with trench excavation and cable laying activities although no further information on the likely level of construction noise either above or below water was provided.

Physical disturbance to seabed
Disturbance to the seabed will result from the use of cable installation tools, including pre-lay grapnel runs, seabed levelling by mass-flow excavation, trenching, post-installation burial and cable protection works. Section 3.4.1.5 of the AA Screening and NIS indicates that the proposed cable trenching activities will impact sediments up to a depth of *ca*. 2.5m. The target trench depth proposed is far greater than fishing trawl furrows, and will result in the elimination of natural seabed topography and the creation of sediment mounds from the sediment displaced from the trench by the excavation. The impacts to the seabed will be temporary. The trenches created will be infilled through natural sediment movement processes due to water currents which will also act to flatten and remove the sediment mounds over time. Clearance of seabed obstructions using the PLG equipment has the potential to scrape the top-most substrate layers removing and dislodging fauna. However, the applicant notes that PLG equipment damage will be of a limited footprint, and the associated impacts will not be of similar scale of the damage associated with trawl or dredge fishing which can be widespread.

Sediment resuspension
Section 3.4.1.5 of the AA Screening and NIS indicates that trenching activities proposed for this project will result in resuspension of sediment. As shown in the applicant's sediment modelling exercise (Appendix 2), sediment plumes generated will lead to deposition of sediment on Annex I habitats and constituent community types. The deposition of sediment has the potential to smother resident communities and the model predicted sediment deposition depths after completion of the cable installation of: up to 2mm towards the south of the cable route; generally less than 1mm and located towards the shoreline where flow speeds are lower than in the central part of the estuary, and up to 20mm inside the small bay to the south east of the cable route.

Electromagnetic field (EMF) effects
EMF is associated with operation of the cables. While this source of effect was identified in the applicant's AA screening, it was not assessed for LSE. Further information provided by the applicant on the nature and scale of EMF effects in response to a Marine Institute observation (see Table 1.1) is noted, and has been considered in this review.

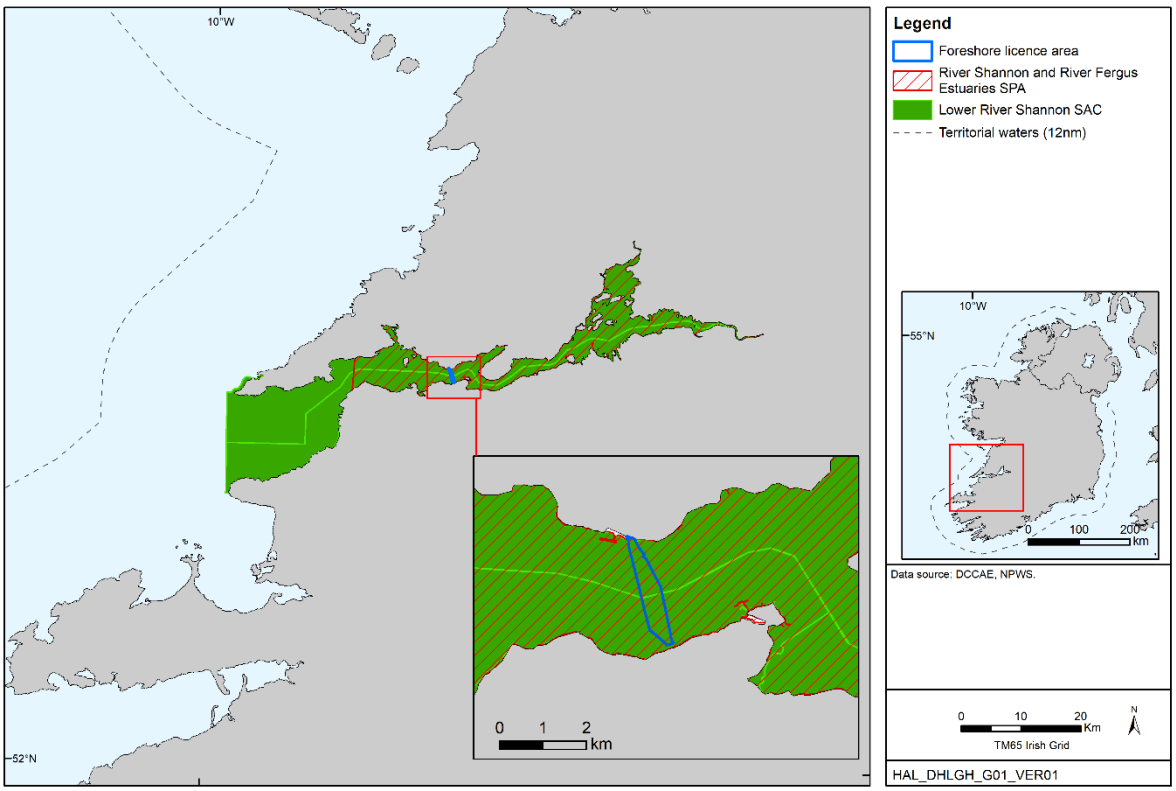
Summary: It is concluded that the applicant identifies most of the potential sources of impact for relevant Natura 2000 sites and their related qualifying interests, from the proposed works. Given that vessel noise may cause behavioural disturbance to bottlenose dolphin and the project location is across a relatively narrow channel where a slow-moving vessel could impact the movement of dolphins along the estuary, further assessment of the potential for behavioural disturbance of bottlenose dolphin from vessel noise is required (see Section 3.7).

3.3 Identification of relevant sites and features

Section 2.3.1.2 indicates that given the spatial extent of the ZoI of the impact mechanisms, the only receptors that have a viable source-pathway link to the proposed project are conservation features for which the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA are respectively designated (Figure 3.1, Table 3.1).

The applicant indicates in Section 2.3.1.2 that "*the source (potential project impact mechanisms), pathways (hydrological, physical or ecological connectivity) and receptors (conservation features) were identified using GIS software, and through the examination of aerial photography and a review of ecological surveys undertaken in the area.*

Figure 3.1: Relevant Natura 2000 sites



Activities associated with onshore pre-construction
As indicated, there is potential that the activities proposed for the onshore preconstruction and civil works may result in the release of sediment, chemicals or other waste material pollution during the construction periods to nearby qualifying interest habitats. The applicant identified potential pathways for interaction between this source of impact and the Estuaries and Reefs qualifying interests of the Lower River Shannon SAC.

Vessel noise disturbance
No relevant sites or features identified by the applicant although see Summary in Section 3.2.

Vessel collision
No relevant sites or features identified by the applicant.

Construction noise disturbance

Noise is readily transmitted underwater and there is potential that bottlenose dolphin may be present during trench excavation and cable laying activities. The applicant identified the potential for significant effects on this qualifying interest from the Lower River Shannon SAC resulting from displacement and/or other behavioural changes. Similarly, diadromous fish species which are qualifying interests of the site (river lamprey, sea lamprey and salmon) could also be present during excavations and cable laying operations. The potential for significant effects on diadromous fish species was also identified.

Given the foraging behaviour of the qualifying interests of the River Shannon and River Fergus SPA, there is potential that they may be present in the project area during operations. The applicant identified that noise disturbance associated with excavation and cable laying activities could potentially cause behavioural changes and/ or injury to foraging birds.

Physical disturbance to seabed
Table 2.12 of the AA Screening and NIS report indicates the potential ZoI of disturbance from the marine works was estimated at *ca*. 500m although no information provided of how that figure was arrived at. The proposed marine cable route is located near or partially overlaps the Estuaries and Reefs qualifying interests of the Lower River Shannon SAC. Consequently, the applicant identified potential pathways for interaction between this source and the Estuaries and Reefs qualifying interests of the site.

Sediment resuspension
The applicant identified the following qualifying interests of the Lower River Shannon SAC (Sandbanks which are slightly covered by sea water all the time, Estuaries, Mudflats and sandflats not covered by seawater at low tide, Coastal lagoons, Large shallow inlets and bays, Reefs) as marine/ coastal habitats whose structure and functionality are influenced by tidal and sediment transport. Sediment plumes generated during trench excavation and cable laying activities could therefore partially overlap the Annex I habitats and/ or their constituent marine community types. Consequently, there were potential pathways for interaction between the source and the qualifying interests.

The Special Conservation Interests (SCIs) of the River Shannon and River Fergus Estuaries SPA (with the exception of the aforementioned Light-bellied brent goose) primarily use wetland habitats for foraging. The applicant indicates that the structure and functionality of wetlands are influenced by hydrological regime and sediment transport. If sediment deposition plumes generated during excavation activities overlap wetland habitats there is potential for significant direct effect to wetlands and indirect effect to bird foraging. The applicant notes that the only attribute for Wetlands is the areal extent (with an associated target that the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 32,261ha, other than that occurring from natural patterns of variation), and since this will not be affected by the proposed development, there is no potential for significant effects on this habitat.

Electromagnetic field effects
No relevant sites or features identified by the applicant.

Summary: It is considered that, though not well defined or justified within the applicant's screening, the ZoI associated with the potential sources of impact have identified the relevant sites and qualifying interests. Given the limited spatial and temporal scale of the proposed works, the potential for significant impacts on mobile species from Natura 2000 sites outside of the immediate area is not considered likely.

3.4 Sites identified by the applicant to be screened for AA

The sites identified by the applicant to be within the ZoI of the works associated with the proposed project were subject to screening assessment. The high level outcome for each site is presented in Table 3.1. The table lists the sources of potential likely significant effect which are considered against each of the relevant sites. Where a potential for LSE has been identified (shaded cell) this is indicated for the relevant qualifying interest against the relevant source of effect.

Table 3.1: Sites screened for likely significant effect and the high level outcome for each site

Site name	Site code	Distance to application area	Qualifying interests	Vessel noise/disturbance	Construction noise/disturbance	Vessel collision	Physical disturbance to seabed	Sediment resuspension from cable installation works	Activities associated with onshore pre-construction	Electromagnetic fields[1]	Cumulative/in-combination impacts
SACs											
Lower River Shannon	IE002165	Overlaps	**Sandbanks which are slightly covered by sea water all the time**								
			Estuaries								
			Mudflats and sandflats not covered by seawater at low tide								
			Coastal lagoons								
			Large shallow inlets and bays								
			Reefs								
			Perennial vegetation of stony banks								
			Vegetated sea cliffs of the Atlantic and Baltic coasts								
			Salicornia and other annuals colonising mud and sand								
			Atlantic salt meadows (Glauco-Puccinellietalia maritimae)								
			Mediterranean salt meadows (Juncetalia maritimi)								

Site name	Site code	Distance to application area	Qualifying interests	Vessel noise/disturbance	Construction noise/disturbance	Vessel collision	Physical disturbance to seabed	Sediment resuspension from cable installation works	Activities associated with onshore pre-construction	Electromagnetic fields[1]	Cumulative/in-combination impacts
			Water courses of plain to montane levels with the *Ranunculion fluitantis* and Callitricho-Batrachion vegetation								
			Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)								
			Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)								
			Margaritifera margaritifera (Freshwater Pearl Mussel)								
			***Petromyzon marinus* (Sea Lamprey)**								
			Lampetra planeri (Brook Lamprey)								
			***Lampetra fluviatilis* (River Lamprey)**								
			***Salmo sala*r (Salmon)**								
			***Tursiops truncatus* (Bottlenose Dolphin)**								
			Lutra lutra (Otter)								
SPAs											
River Shannon	IE004077	Overlaps	Cormorant (*Phalacrocorax carbo*)								
			Whooper Swan (*Cygnus cygnus*)								

Site name	Site code	Distance to application area	Qualifying interests	Vessel noise/disturbance	Construction noise/disturbance	Vessel collision	Physical disturbance to seabed	Sediment resuspension from cable installation works	Activities associated with onshore pre-construction	Electromagnetic fields[1]	Cumulative/in-combination impacts
and River Fergus Estuaries			Light-bellied Brent Goose (*Branta bernicla hrota*)								
			Shelduck (*Tadorna tadorna*)								
			Wigeon (*Anas penelope*)								
			Teal (*Anas crecca*)								
			Pintail (*Anas acuta*)								
			Shoveler (*Anas clypeata*)								
			Scaup (*Aythya marila*)								
			Ringed Plover (*Charadrius hiaticula*)								
			Golden Plover (*Pluvialis apricaria*)								
			Grey Plover (*Pluvialis squatarola*)								
			Lapwing (*Vanellus vanellus*)								
			Knot (*Calidris canutus*)								
			Dunlin (*Calidris alpina*)								
			Black-tailed Godwit (*Limosa limosa*)								
			Bar-tailed Godwit (*Limosa lapponica*)								
			Curlew (*Numenius arquata*)								
			Redshank (*Tringa totanus*)								
			Greenshank (*Tringa nebularia*)								

Site name	Site code	Distance to application area	Qualifying interests	Vessel noise/disturbance	Construction noise/disturbance	Vessel collision	Physical disturbance to seabed	Sediment resuspension from cable installation works	Activities associated with onshore pre-construction	Electromagnetic fields[1]	Cumulative/in-combination impacts
			Black-headed Gull (*Chroicocephalus ridibundus*)								
			Wetland and Waterbirds								

Notes: EMF has been identified in the applicant's screening as a source of effect but was not addressed in detail, however, in view of the additional information provided as part of the prescribed bodies consultation (see Table 1.1), it is concluded that no likely-significant effect is identified for either relevant site.

3.5 In-combination effects

To inform the assessment of potential in combination effects a review of consent applications for projects in the vicinity of the proposed cable laying project included on the following web-sites was completed in March 2020:

- DHPLG (http://www.housing.gov.ie/planning/foreshore/foreshore-consenting and https://www.housing.gov.ie/planning/environmental-assessment/environmental-impactassessment-eia/eia-portal). Reviewer notes now DHLGH (https://www.gov.ie/en/collection/f2196-foreshore-applications-and-determinations/)
- ABP (http://www.pleanala.ie/lists/2018/sid/index.htm). Reviewer notes page not found. Presumably now - https://www.pleanala.ie/en-ie/lists/cases?list=I&year=2018
- Clare County Council (http://www.eplanning.ie/ClareCC/searchtypes)
- Kerry County Council (http://maps.kerrycoco.ie/flexviewers/kerrymaps/). Reviewer notes server not found. Presumably now - https://kerry.maps.arcgis.com/apps/webappviewer/index.html?id=33565bc13600476c8c4bae1eadb8c22d

The assessment of potential in combination effects (described in Table 2.13 of the AA Screening and NIS) also considered negative impacting threats and pressures and positive impacting activities/ management affecting the sites as identified in Natura 2000 forms published for the sites.

On commercial shipping (shipping lanes identified as a threat for the River Shannon and River Fergus Estuaries SPA), the existing level of shipping was outlined in Section 3.2 above. The temporary presence of the project vessels (i.e. CLB/ CLV, launch vessel, guard/ support vessel) will not significantly increase the overall level of vessel activity in the area and so it was deemed that there is no likelihood of potential significant in combination effect on SCIs of the River Shannon and River Fergus Estuaries SPA or qualifying interests of the Lower River Shannon SAC.

The maintenance dredging activities in the Shannon are said to have remained stable over the last 10 years (although no data provided), the applicant notes that the construction phase of the proposed project will not require marine dredging or 'Dumping at Sea'. The reviewer queries whether the submarine rock protection operations would not require a DAS permit. Based on the above, the applicant concluded dredging activity did not pose a risk of significant in combination effect to on SCIs of the River Shannon and River Fergus Estuaries SPA or the qualifying interests of the Lower River Shannon SAC.

Shannon Clean Tech Ltd has applied for a 10-year permission for the development of a Battery Energy Storage System (BESS) Facility on a site of *ca*. 0.6ha in the townland of Kilpaddoge, Tarbert, Co. Kerry. An AA screening report for the BESS facility concluded:

- No potential impact to Natura sites from habitat loss as there were no hydrological links (impact pathways) between the development and the Lower River Shannon SAC and the River Shannon and River Fergus Estuary SPA.
- The construction and operation of the development would not cause disturbance to the birds using the River Shannon (and hence the SPA) as the development site is located 300m from the estuary (and boundary of the SPA) and is not suitable for roosting and foraging of the qualifying bird species of the River Shannon and River Fergus Estuary SPA.

- With respect to water quality, adherence to standard construction codes would result in no significant impacts from the proposed development on water quality in the River Shannon.

In light of this information, the applicant concluded no potential for significant in-combination effects with the proposed works.

The Electricity Supply Board (ESB) is proposing to develop a Synchronous Condenser on land at Moneypoint Power Station, Carrowdotia, Co. Clare. An AA screening assessment for the development noted that piling works during the construction phase of the development may result in elevated underwater noise in the immediate vicinity of the Moneypoint site which could affect bottlenose dolphin. The NIS prescribed a marine mammal observer (MMO) operating in accordance with 'Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters' as mitigation to alleviate the potential for adverse effects on the Lower River Shannon SAC. The Synchronous Condenser development will be delivered over a 12–18 month programme (as per the planning application). There is potential for the works to coincide with the Cross Shannon 400 kV project which could in turn exacerbate the noise effects on the bottlenose dolphin qualifying interest. The applicant noted the potential for in-combination noise effects with the Moneypoint Synchronous Condenser development.

The applicant noted plans to carry out a geophysical survey of the Prospect Tarbert pipelines which extend across the River Shannon estuary from Tarbert Generating Station in Co. Kerry to Kilkerin Point in Co. Clare. However, a Notice to Mariners[3] would suggest that the project was completed in 2020.

The applicant noted the proposed LNG terminal at Ballylongford, Co. Kerry and that potential in-combination effects could arise if both projects are constructed at the same time. An application for a revised LNG development was lodged with An Bord Pleanála (27th August 2021)[4]. Given this, the applicant should provide consideration of the potential for in-combination effects with the proposed Shannon Technology and Energy Park (see Section 3.7).

3.6 Transboundary effects

No transboundary effects were identified.

3.7 Requests for Further Information

Two requests for further information were made to the applicant under Regulation 42(3)(b) of the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended), on a number of points, reproduced below with links to the applicant's response, together with any commentary from the reviewers.

- *Further information on the potential for vessel noise to cause behavioural disturbance to bottlenose dolphins, given the project location and where a slow moving vessel could impact the movement of dolphins along the estuary and whether this consideration alters the conclusions of the applicant's appropriate assessment screening.*

Applicant's response:

[3] https://www.sfpc.ie/wp-content/uploads/2020/09/Marine-notice-07-of-2020-updated-1.pdf
[4] https://www.pleanala.ie/en-ie/case/311233

The applicant's RFI Response describes recent studies completed to inform the EIAR and NIS of the Shannon LNG Ltd proposed Shannon Technology Enterprise Park (STEP) project, recently lodged with An Bord Pleanála (27th August 2021)[5].

The RFI Response indicates that for the STEP project, AQUAFACT carried out visual surveys for dolphins from a Rigid Inflatable Boat, collected ambient noise levels both in daylight and at night-time and reviewed reports on monthly dolphin surveys prepared by Irish Whale and Dolphin Group (IWDG). In addition, as part of the project, AQUAFACT reviewed a predictive mathematical noise model (Vysus 2021), prepared by Lloyd's Register (now Vysus Group), of current noise levels in Shannon and potential noise associated with the proposed STEP project. Specifically, the sources of noise considered in the model included noise from jetty pile driving activities, noise from a range of vessels including a combination of the FRSU, the LNG carrier vessels and tugs that will be in use during operations at the LNG terminal, commercial vessels heading up and down river and the cross-Shannon ferry. An ecological impact assessment (LGL 2021), was prepared of these noise sources on the Shannon dolphins, porpoises, seals and a selection of fish.

The report (LGL 2021) concluded that pile driving was the only source of noise that had the potential to cause a permanent threshold shift (PTS) for dolphins. Sources of continuous non-impulsive sounds (such as vessel noise) had no potential for PTS. The report concluded that the potential disturbance exposures would have no more than a minor impact, such as localised short-term avoidance of the area around the activities by individual animals, with no effect on the population. Based on these findings, the applicant concluded that the temporary presence and additional noise emitted from the cable laying vessel will only have a minor effect and an insignificant effect on the noise climate; consequently significant noise effects will not occur to the population of dolphins that is present in the Lower Shannon.

Commentary:
The reports referenced by the applicant with respect to the STEP project have been reviewed and appear to be comprehensive and of sufficient scientific rigour. They provide sufficient information to conclude that LSE with respect to vessel noise can be excluded for the bottlenose dolphin feature of the Lower River Shannon SAC.

In light of the lodging of the proposed STEP project with An Bord Pleanála, the applicant as indicated in Section 3.5 should provide adequate consideration of the potential for in-combination effects with the proposed Shannon Technology and Energy Park.

- *The Conservation Objectives for the Lower River Shannon SAC, (NPWS, 2012) includes Figure 6a showing the distribution of marine community types (also shown on Figure 3.11 of the applicant's Screening Statement and Natura Impact Statement), which indicates the presence of a community type described as "Faunal turf-dominated subtidal reef community". This community type is present in three of the Annex I habitats for which the site is designated, namely Estuaries, Large Shallow Inlets and Bays, and Reefs. The applicant's Screening Statement for Appropriate Assessment and Natura Impact Statement made an assessment, in Section 3.4.1.5., of the effects of Impact Mechanism 5 (physical disturbance) and Impact Mechanism 6 (sedimentation of resuspended solids) and concluded that any effects would be temporary and there would be no significant adverse effects. This holds true for soft sediment communities but not for communities which have a substrate of boulders and cobbles.*

[5] https://www.pleanala.ie/en-ie/case/311233

However, given the depth of projected excavation (2.5m, although this may not be feasible in the stony reef area), installation of 4 cables each with a minimum separation distance of 1x the water depth, limited definition of the extent of rock protection that will be necessary, and lack of detail on how the cable laying vessel would maintain position (the example vessel shown in Figure 2.20 is capable of being anchored or dynamically positioned), further information is requested on how the conservation object target, to conserve the community types in a natural condition, will be assured.

Specifically, provide an assessment of the area of this community type in each of the Annex I habitats which will be affected by Impact Mechanisms 5 and 6, and an assessment of whether the project would result in significant effects to an approximate area of 15% of the interpolated area. This exercise should be carried out for each Annex I Habitat which may be affected by Impact Mechanisms 5 and 6.

Applicant's response (1):
The applicant provides a listing of examples of existing literature on the re-colonisation of hard substrates in the marine environment.

The applicant notes that the species that occur on boulders and cobbles that are present nearby the area being excavated and that are not affected by the excavation process will quickly colonise the freshly exposed surfaces and rocks put in place.

With regard to the comment that *"any effects would be temporary and there would be no significant negative effects. This holds true for soft sediment communities but not for communities which have a substrate of boulders and cobbles"*, the applicant notes there are no ecological differences between these two community types that would allow one to re-establish but not the other.

The applicant submits that based on evidence, the proposed development will have no adverse effects on such communities.

A particular note is made by the applicant that the relevant community in question is the "faunal turf-dominated subtidal reef community". This marine community type is found in Annex I habitat 1130 estuaries. The Conservation Objective for this habitat in the Lower River Shannon SAC is to maintain its favourable conservation condition that is defined by the following attributes: habitat area and community distribution. Cable laying required by this project will not affect these attributes.

Applicant's response (2):
The applicant confirmed that the cable routes cross two "Faunal turf-dominated subtidal reef community" types within Qualifying Interest habitats, namely Estuaries [1130] and Reefs [1170]. The area of the Estuaries [1130] reef community habitat was 981 ha, and for Reefs [1170] the reef community area was 9,692 ha. Based on a trench area of 4.005 ha, the percentage overlap of the 4 cable routes that cross the Faunal turf-dominated subtidal reef community in Qualifying Interest habitats Estuaries [1130] and Reefs [1170] is 0.41% and 0.05% respectively, and totalling 0.45%. This figure is an order of magnitude lower than the 15% threshold level stipulated in the Conservation Objectives for the Lower Shannon SAC.

With regard to the effect of Impact Mechanism 6 (sedimentation of resuspended solids) on the Faunal turf-dominated subtidal reef community, due the size of the Shannon River catchment which is ca 17,000 km^2 and the land use which is largely agricultural, bog and forestry, suspended solids levels in the Shannon are naturally high. The Faunal turf-dominated subtidal reef community that is present at the cable crossing site are therefore well adapted to such levels of suspended sediments. In addition however, as velocities in the western half of the

Shannon are high reaching 2.5 m/sec, any sediments generated by the trenching activity will be quickly dispersed and diluted away from the site.

Commentary:
The applicant has provided an assessment of the area of the "faunal turf-dominated subtidal reef community" community type in each of the Annex I habitats which will be affected by Impact Mechanisms 5 and 6. The assessment indicates that the project would affect an area at least an order of magnitude less than the 15% of the interpolated area for each Annex I Habitat (see the relevant conservation objectives and targets[6]).

Re-colonisation of areas of disturbed areas of reef or of rock dump cable protection is inevitable. Given the scale of proposed activity, the physical conditions within the site, and the areal extent of the Qualifying Interest habitats, it is agreed that sedimentation of resuspended solids will not result in adverse effects on the Conservation Objectives for the Lower River Shannon SAC.

3.8 Screening conclusion

Finding of no significant effects statement:
The applicant has not defined a distance-based zone of influence but has considered the potential for interactions between each qualifying interest of relevant sites and the sources of effect identified above on a case-by-case basis. Given the nature and scale of the proposed works; the sources of effect, site selection, and feature screening is deemed appropriate, and an adequate level of information has been provided to justify the screening conclusions, though more detail could have been provided to demonstrate the scale of each ZoI identified at the screening stage. The only element of the screening which is not clear, are to what extent effects from electromagnetic fields (EMF) have been considered. Though listed as a potential source of likely significant effect, no further information is provided on whether any site qualifying feature is relevant. This issue was raised by the Marine Institute Observation 1 in Table 1.1 and the applicant's response is deemed sufficient to provide a basis of evidence to conclude that significant effects are not likely for the features of the relevant sites, and that no other site should be screened in on the basis of EMF effects.
SACs
None of the relevant sites were discounted for LSE.
SPAs
None of the relevant sites were discounted for LSE.
Consultation with conservation authorities
The consultation feedback from prescribed bodies is provided in Table 1.1. Comments relating to Natura 2000 aspects of the application were received from the Marine Institute and IFI – see above for issues raised with respect to EMF.

6 https://www.npws.ie/sites/default/files/publications/pdf/002165_Lower%20River%20Shannon%20SAC%20Marine%20Supporting%20Doc_V1.pdf

Screening determination
Lower River Shannon SAC
LSE on the following qualifying interests could not be ruled out with respect to physical disturbance to seabed: • Estuaries • Reefs LSE on the following qualifying interests could not be ruled out with respect to sediment resuspension from cable installation works: • Sandbanks which are slightly covered by sea water all the time • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Coastal lagoons • Large shallow inlets and bays • Reefs LSE on the following qualifying interests could not be ruled out with respect to activities associated with onshore pre-construction: • Estuaries • Reefs LSE on the following qualifying interests could not be ruled out with respect to construction noise/disturbance: • *Petromyzon marinus* (Sea Lamprey) • *Lampetra planeri* (Brook Lamprey) • *Lampetra fluviatilis* (River Lamprey) • *Salmo salar* (Salmon) • *Tursiops truncatus* (Bottlenose Dolphin) LSE on the following qualifying interest could not be ruled out with respect to in-combination noise effects: • *Tursiops truncatus* (Bottlenose Dolphin) It is accepted that likely significant effects cannot be discounted for these qualifying interests and that Stage 2 Appropriate Assessment is required.
River Shannon and River Fergus Estuaries SPA
LSE on the following Special Conservation Interests could not be ruled out with respect to construction noise/disturbance and sediment resuspension from cable installation works: • Cormorant (*Phalacrocorax carbo*) • Whooper Swan (*Cygnus cygnus*) • Shelduck (*Tadorna tadorna*) • Wigeon (*Anas penelope*)

- Teal (*Anas crecca*)
- Pintail (*Anas acuta*)
- Shoveler (*Anas clypeata*)
- Scaup (*Aythya marila*)
- Ringed Plover (*Charadrius hiaticula*)
- Golden Plover (*Pluvialis apricaria*)
- Grey Plover (*Pluvialis squatarola*)
- Lapwing (*Vanellus vanellus*)
- Knot (*Calidris canutus*)
- Dunlin (*Calidris alpina*)
- Black-tailed Godwit (*Limosa limosa*)
- Bar-tailed Godwit (*Limosa lapponica*)
- Curlew (*Numenius arquata*)
- Redshank (*Tringa totanus*)
- Greenshank (*Tringa nebularia*)
- Black-headed Gull (*Chroicocephalus ridibundus*)

Screening for AA carried out by An Bord Pleanála

ABP undertook an AA screening as part of the Strategic Infrastructure consenting process for the works, as detailed in the Inspector's Report[7]. ABP concluded that sufficient information had been provided, for example, on the nature, size and location of the project and its likely effects, including in-combination with other plans and projects, that an AA screening could be undertaken. ABP's screening determined that the only sites for which a significant effect was likely were the Lower River Shannon SAC and the River Shannon and River Fergus SPA, as concluded by applicant, and that these sites should be subject to Appropriate Assessment. This conclusion is also made for this screening in relation to the application for a Foreshore Licence.

[7] https://www.gov.ie/en/foreshore-notice/07fcb-eirgrid-plc/

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An Bord Pleanála

Inspector's Report

ABP-307798-20

Development	Proposed 400kV electricity transmission cables, extension to the existing Kilpaddoge Electrical Substation and associated works, between the existing Moneypoint 400kV Electrical Substation in the townland of Carrowdoita South County Clare and existing Kilpaddoge 220/110kV Electrical Substation in the townland of Kilpaddoge County Kerry. The development includes work in the foreshore.
Location	Townland of Carrowdotia South County Clare and Kilpaddoge County Kerry.
Planning Authority	Clare County Council
Applicant(s)	Eirgrid
Type of Application	Application for approval under Section 181 (2)(A) of the Planning and Development Act.

Observer(s)	Department Culture, Heritage and the Gaeltacht, Clare County Council Kerry County Council
Date of Site Inspection	08/10/20
Inspector	[redacted]

Contents

1.0 Introduction

Pre-application Consultation

1.1. Eirgrid requested a Pre-Application consultation under Section 182 (E) of the Planning and Development Act 2000, as amended. Two pre-application meetings were held with the applicant on the 25th October 2019 and 13th March 2020, whereby the details of the proposed development were presented. The applicant sought the opinion of the Board as to whether the proposed development comprised Strategic Infrastructure Development and whether an EIAR was required to be submitted.

1.2. Following consultation, the Board determined that in accordance with Section 182 (A) of the Planning Development Act 2000, as amended, the proposed development comprised of Strategic Infrastructure Development. With regard to the requirement for EIA, the proposed development was not considered to constitute a project with either Annex I or Annex II of the Directive 2011/92/EU as amended by 2014/52/EU or within Part 1 or Part 2 of Schedule 5 to the Planning and Development Regulations 2001, as amended. An Environmental Impact Assessment Report was therefore not required to accompany the application.

2.0 Site Location and Description

2.1. The site of the proposed development extends from the existing Kilpaddoge 220kV substation on the southern shore of the Shannon Estuary across the estuary to the existing Moneypoint 400kV substation on the northern shore of the estuary. The existing Kilpaddoge substation is located close to the southern shoreline of the estuary. There is an area of ground within the compound of the existing substation where it is proposed to develop the proposed 400kV Air Insulated Switchgear (AIS) bay. The existing substation compound is accessed via an existing access road from the local road to the west of Tarbert. There is a battery storage compound currently under construction to the east of the compound accessed by the same access road as the substation. The area in the vicinity of the substation accommodates overhead power lines and towers. From this compound it is proposed to traverse approximately 2.8km of the Shannon estuary to the northern shore.

2.2. The area between the proposed northern landfall and the Moneypoint facility comprises agricultural fields and a series of agricultural lanes until it enters the Moneypoint facility and connects into the existing 400kV substation. The Moneypoint facility is a large industrial facility including the powerstation and substations on the northern shore of the estuary. The area in the vicinity of the facility includes overhead powerlines and towers, wind turbines and agricultural holdings.

3.0 **Proposed Development**

3.1. Eirgrid have made an application under section 182 (a) of the Planning and Development Act 2000, as amended, for the construction of a 400kV transmission cable approximately 5km in length between the existing Moneypoint 400 kV GIS substation in County Clare and the existing Kilpaddoge 220 kV substation in County Kerry, an extension to the existing Kilpaddoge Electrical Substation, and all associated works. The development includes the following:

Underground cable

- Approximately 40m of underground cable on lands within the Kilpaddoge substation compound from the proposed AIS bay (outlined below).
- Approximately 2.8km of submarine cabling across the estuary which it is proposed will be buried by way of ploughing, jetting, trenching or cutting the seabed material at a suitable depth.
- Approximately 1.8km of underground cable from the proposed landfall on the northern shore across agricultural lands (some third party lands) and lanes and into the Moneypoint compound. The cable route includes a series of joint bays at intervals along the route.

Transition Joint Bays

- Two underground transition joint bays, one at Moneypoint and the other at Kilpaddoge, which are approximately 10m long, 10m wide and 2.5m deep where the submarine cable makes landfall connecting with the onshore underground cable.

400 kV Air Insulated Switchgear (AIS) Bay

- A new 400 kV Air Insulated Switchgear (AIS) bay within an extended compound of the existing Kilpaddoge 220 kV substation. The AIS bay will accommodate electrical equipment up to approximately 10m height and lightening protection masts up to approximately 25m.
- All associated and ancillary site development works.

A full and detailed description of all works is outlined in Section 4 of the Planning and Environmental considerations report submitted.

3.2. Prescribed Bodies

Health and Safety Authority

No objections

Department of Culture, Heritage and the Gaeltacht –

This submission raises a number of points in relation to marine archaeology, birds, climate change and impacts arising from electromagnetic effects.

Archaeology

- It is mentioned within the submission that the Shannon estuary contains significant potential for marine archaeology. The department recommends that conditions are attached to any grant of permission which seek the use of a suitably qualified under water archaeologist to be engaged to carry out further archaeological mitigation. It is also requested that a detailed method statement accompanies any licence application.
- An exclusion zone of 100 metres is requested to be provided around SS12 (which is an anomaly shown on the sonar scan). In the event that this exclusion zone cannot be provided it is requested that a dive survey is carried out to investigate this anomaly.
- A detailed plan for testing in the area of the south landing following the route of the cable shall form part of any licence application.
- Anomaly M10 shall be subject to additional testing.

- It is acknowledged that the applicant will open test trenches, the department requires that these trenches are of a sufficient size to fully assess what the magnetometer anomalies identified are.
- A full report should be submitted to the Underwater Archaeology Unit within the National Monuments Service for review.

Impacts on Qualifying interests

- The Department concurs with the conclusion of the NIS submitted which states that the proposed works are unlikely to pose a significant risk to marine nature and conservation interests in the vicinity provided that all mitigation outlined in Section 3.6 of the report is attached as a condition of consent.

Climate Change

- Effects of climate change and the associated sea level rise and increased tidal surge heights have not been considered in relation to the future requirement for additional coastal protection of the cable landfall structure and substation infrastructure.

Birds

- Survey data on bird use of the shoreline has not been included and the reason why has not been mentioned.

Electromagnetic Impacts.

- With regard to the potential for electromagnetic effects on migrating sea lamprey and other fish it is stated within the NIS that impacts have not been recorded. The scientific sources are not given.

Kerry County Council –

Kerry County Council in their submission outline the policy framework for the proposed development at a national, regional and local level, and makes the following points:

Policy

- It is stated that the Kerry County Development Plan 2015-2021 supports the development of secure and reliable electricity transmission infrastructure. It is further mentioned that the Listowel Municipal District Local Area Plan 2019-2025 recognises the ongoing potential of the Tarbert /Ballylongford landbank

to be sustainably developed for industry and accordingly lands at the Kerry side of the development are zoned for industry.

- The Shannon Integrated Framework Plan has identified these lands as a Strategic Development Location.

Archaeology

- The Council refers to the discovery of archaeological material found at the foreshore near to the proposed development and raises concerns in relation to the extent archaeological testing within the development site.
- The Council states that this area is suspected to have accommodated historical development such as salmon weirs and there are a number of ship wrecks within the Shannon Estuary. A number of posts were discovered in the area within the foreshore and it is considered that these were associated with historical settlements.
- The Kerry County Council Archaeologist concurs with the submission of the Department as set out above in that test trenches should be sufficient in size and carried out early. Monitoring would not be an appropriate mitigation in this instance.

General observations

- The submission states that the proposed development will not have any impacts on the receiving environment subject to the implementation of all mitigation measures proposed.
- Conditions are recommended in relation to a bond for any damage to the public road network during construction.
- The Board is respectfully requested to consider community gain within their decision.
- Visual impacts are not considered to arise.

Clare County Council –

Clare County Council in their submission outline the policy framework for the proposed development and considers the following:

Policy

- Clare County Development Plan 2017-2023 supports the diversification and expansion of Moneypoint Power Station and seeks to promote and facilitate

the achievement of secure and efficient energy supply, storage and distribution. A list of objectives and policies are provided within the submission.

- Reference is made to the Shannon Integrated Framework Plan for the Shannon Estuary, which is a marine based framework plan to guide future development and management of the Shannon Estuary. It is stated by the Council that the Shannon estuary has been identified within this Framework as an area of opportunity for tidal energy testing due to the deep waters present. The Council is concerned that the proposed development would hamper the future potential of the Shannon estuary as an area to test tidal energy devices and as such would impact upon the provisions and intentions of the SIFP.
- It is stated by the Council who were co-authors of the framework, that the proposed development should be balanced with the needs of other renewable energies which have the potential to create jobs and attract an international audience leading to further economic benefits.
- A planning history for the site has been outlined and relates to development within the Moneypoint Power Station.
- Relevant national and regional policies are also referred to which support the provision of energy related development.

<u>General considerations</u>

- The Council has no concerns in relation to drainage, flooding, visual impact or roads infrastructure, subject to conditions.

3.3. **Further Information Requested**

3.4. Further information was requested of the applicant in relation to the following issues:

- Review the submissions made and respond accordingly. Any additional information submitted shall address the anomalies highlighted by the sonar scan at locations identified as SS12 and M10. Additional information submitted should include details of the proposed methodology for archaeological testing, including trench locations and measurements.
- The Department of Culture, Heritage and the Gaeltacht also refer to the lack of survey data on birds and the lack of reasoning for this, the applicant is

requested to address this issue and submit any relevant additional information in this regard.

- Clare County Council within their submission raise concerns in relation to the conflict of the proposed development with use of the Shannon Estuary for the testing of wave energy devices. The applicant is requested to address this issue and provide any additional information in support of their response.
- Any other information relevant to the submissions made.

3.5. **Response to Further information**

3.6. The applicant responded to the further information request as follows:

- An exclusion zone of 60m, measured from the centre of Anomaly SS12, is currently provided. The water depth at SS12 is 50m. This depth precludes investigation by diver inspection, as this depth is at the limits for safe diving in ordinary circumstances.
- To assess the location further, the project can include a remote-sensing survey licensed by the Department of Housing, Local Government and Heritage. The remote sensing survey will form part of pre-construction survey work required to micro-site the cable route. Such work will include the wider area around SS12 to facilitate a detailed assessment of the archaeological risk of this location. The dive survey will include assessment of the area with a hand held metal detector as recommended.

<u>Dive Survey - M10 and S1</u>

- The localised cluster of magnetometer anomalies M10 in the onshore area of N2 lies approximately 114m offshore from the High Water Mark in water depths of the 20–25m. The location is submerged at Low Water. It is proposed that archaeological testing will be carried out by remote-sensing survey, as per the survey methodology for SS12 detailed above. The South Landing site S1 will be included in the remote sensing survey. Details of proposed test trenches at both sites will be included in a licence application report to the Department.
- The results of any dive surveys will be submitted to the Underwater Archaeology Unit of the National Monuments Service for review in advance of any proposed works taking place.

- EirGrid/ESB will appoint a suitably qualified and experienced underwater archaeologist to advise the project team, to apply for the necessary archaeological consents and to conduct the archaeological work that is required post-consent, pre-construction and during construction activities.

Birds

- An extensive water-bird survey of the River Shannon and River Fergus Estuaries was carried out in 2017/18 by McCarthy Keville O'Sullivan (MKO, 2019). The survey was commissioned under the Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary 2013-2020. The SIFP survey data were considered to determine the level of importance for bird numbers and usage of the proposed cable route and landfall sites at Moneypoint on the Clare coast and Kilpaddoge on the Kerry coast. The majority of the shoreline at the Moneypoint landfall is not exposed at low tide and the area is therefore of reduced significance for waterfowl in terms of a feeding resource or a roosting site, relative to extensive areas of exposed intertidal habitat elsewhere in the Shannon Estuary.
- Surveys during conditions of clear visibility at mid-tide on 4 November 2020, EirGrid's ecologist recorded only a single oystercatcher within c. 1 km of the Moneypoint landfall and a single grey heron in the nearby quarry.
- There is some muddy shoreline at low water at Killimer and this provides some potential feeding and roosting habitat for a variety of waterbirds including dabbling ducks, waders and gulls. On 4 November 2020 EirGrid's ecologist recorded, within approximately 1 km of the proposed Killimer landfall at low tide, a peak of two oystercatcher roosting/feeding amongst rocks, a single feeding curlew and a single Red throated diver in near shore waters
- There are 21 bird species which are Species of Conservation Interest (SCI) for the River Shannon and River Fergus Estuaries Special Protection Area (SPA). With the exception of the cormorant, whooper swan and black-headed gull, the remainder of the 21 SCIs feed on mudflats, grasslands and sandflats or dabble at low water on similar substrates. Cormorants feed on fish in open water, while whooper swans feed either on freshwater vegetation or on grasses on land and black-headed gulls are omnivorous scavengers not restricted to intertidal habitats.

- The SIFP data presented in the MKO (2019) report show that the area where the proposed cables will cross is not an important site for total numbers of birds. The area scored low to medium in terms of mean species richness and mean total numbers per count. The same area was also shown to be of limited use as bird flocking and roosting sites. The reasons for the area not being an important area for waterbirds is most likely due to the lack of suitable substrate e.g. sand or mud flats that are exposed at low water. Another factor for the Clare side is potentially due to disturbance due to shipping coming in and out of Moneypoint and the ferry service at Killimer.

Strategic Integrated Framework Plan

- The Area of Opportunity identified in the SIFP is at variance with government sponsored documentation identifying suitable locations for tidal energy development in the Shannon Estuary. Tidal resource potential identified on Ireland's Energy Portal website are located on the southern shores of the Shannon Estuary and therefore will not be impacted upon by the Cross Shannon Project
- Although areas of tidal resource potential have been identified in the Shannon Estuary on Ireland's Energy Portal they have not been the focus of research funding or test sites.
- The SIFP was published in 2013 and is now out of date as the Regional Spatial and Economic Strategy (RSES) for the Southern Regional Assembly has been published. It is a statutory requirement that all land use plans at a local level (which would include the SIFP for the Shannon Estuary) are in accordance with Regional and National Strategy. Therefore to remain relevant, the SIFP must be updated to align with the RSES and the OREDP. The review of the SIFP will require alignment of areas of opportunity/ sites of potential produced by Ireland's Energy Portal.

Coastal Erosion

- The initial assessment of coastal erosion risk completed by the Office of Public Works (OPW) did not identify the study area as being at significant risk of erosion.

- During the detailed design stage, it would also be determined whether a further allowance would be required for storm surges and waves, to minimise effects of overtopping. We would expect that the detailed design would be such that once the final design and construction has taken place it would be unlikely that that more extensive or higher rock armour would be required in its design life (incorporating a 50 year design life with allowance for sea level rise is often standard practice in such coastal infrastructure).
- The reinforced concrete ramp and cable channels would also provide erosion protection to the proposed slope. The design elevation of both the transition joint bay and substation extension are not considered to be at risk of flooding from sea level rise.

Electromagnetic Fields

- The environmental assessment of the potential effect of EMF fields on behaviours of marine species was informed by a review of available literature. Literature suggests that migrating salmon are influenced by Olfactory cues.
- In terms of eels a two year field study of migrating Silver eels passing the Baltic Cable showed the species crossed the cable with the same probability as if it were absent.
- The review by Gill and Bartlett (2011) reported that there was no evidence that sea lampreys possess an ability to detect magnetic fields. Furthermore, the review reported no evidence that EMF plays any role in species migration during their homeward migrations to coasts and estuaries.
- It is concluded that EMF produced by the proposed development is unlikely to significantly affect decapod or elasmobranch species.
- The proposed development is critically important to EirGrid Strategy, Ireland's Climate Change Strategy and to achieving a goal of 70% renewable energy on the Grid by 2030. The proposed development will facilitate the transfer of offshore renewable energy to demand centres across the country.

3.7. Third Party Observations

- None

4.0 Planning History

Kilpaddoge 220 kV Station

- ABP Ref: PL08B.VA0007 – permission granted by the Board on 26 September 2011 for the development of a 220/110kV substation with associated works including the removal of 220/110 kV overhead lines and their replacement by a reduced number of lines plus underground cabling.

Moneypoint 400 kV GIS Station

There is an extensive planning history on the Moneypoint site. The following is of particular relevance:

- Clare CC Ref: 14/190 – permission granted in May 2014 for development at the existing 400 kV substation site, which consists of: new indoor Gas Insulated Switchgear (GIS) 400 kV substation building (3463m2 and 17m high), two new 400/220 kV transformers with associated Switchgear, three new 30 meter high lightning masts, and associated drainage and site works. The application relates to a previous grant of planning permission (Reg. Ref. P11-457).

Existing Submarine Cable

4.1.1. The applicant outlined that the cable element of the existing Kilpaddoge – Moneypoint 220 KV subsea cable, completed c.2006, was considered exempted development and the offshore element specifically holds a foreshore licence. This cable was completed c. 2006. Some aspects of the project were also provided for under extant permissions for Kilpaddoge 220 kV Station and Moneypoint 400 kV GIS Station above.

5.0 Policy Context

National Planning Context

5.1. National Planning Framework

5.1.1. One of the National Strategic Outcomes (8) set out in the NPF is the “Transition to a Low Carbon and Climate Resilient Society”. It is stated in the NPF that “the National Climate Policy Position establishes the national objective of achieving transition to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050. This objective will shape investment choices over the coming decades in line

with the National Mitigation Plan and the National Adaptation Framework. New energy systems and transmission grids will be necessary for a more distributed, renewables-focused energy generation system, harnessing both the considerable on-shore and off-shore potential from energy sources such as wind, wave and solar and connecting the richest sources of that energy to the major sources of demand".

5.1.2. Section 9.2 of the Plan addresses Resource Efficiency and Transition to a low carbon economy. There are a number of National Policy Objectives which seek to reduce carbon footprint by integrating climate action into the planning system. The NPF states, in relation to energy policy and planning that Ireland's national energy policy is focused on three pillars: "(1) sustainability, (2) security of supply and (3) competitiveness. The Government recognise that Ireland must reduce greenhouse gas emissions from the energy sector by at least 80% by 2050, compared to 1990 levels, while at the same time ensuring security of supply of competitive energy sources to our citizens and businesses".

5.1.3. The NPF further states that "in the energy sector, transition to a low carbon economy from renewable sources of energy is an integral part of Ireland's climate change strategy and renewable energies are a means of reducing our reliance on fossil fuels. The forthcoming Renewable Electricity Policy and Development Framework will aim to identify strategic areas for the sustainable development of renewable electricity projects of scale, in a sustainable manner, compatible with environmental and cultural heritage, landscape and amenity considerations. The development of the Wind Energy Guidelines and the Renewable Electricity Development Plan will also facilitate informed decision making in relation to onshore renewable energy infrastructure".

5.1.4. National Policy Objective 55 states: "promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050".

Regional Planning Context

5.2. **Regional Spatial Economic Strategy for the Southern Region**

5.2.1. The RSES for the Southern Region came into effect in January 2020 and includes both Clare and Kerry. Chapter 8 deals with Water and Energy Utilities with Section 8.2 of the document dealing with the Strategic Energy Grid. The document states that "the Region is particularly rich in renewable energy resources and contains significant

energy generation infrastructure of national and regional importance, including hydro-generation, thermal generation at Moneypoint, Tarbert, Marina, Aghada, Whitegate and Great Island". It continues by stating that "even with significant energy demand centres, the Region is currently generating more than demand at present Eirgrid's Grid Development Strategy, Your Grid, Your Tomorrow addresses the overall need of the system and will increase transfer capacity from the south and southwest to the Eastern and Midland Region. This signifies the strategic role of the Region's energy assets in national energy generation and transmission".

5.2.2. It also states that "the existing infrastructure, developed over many years, represents major and on-going capital and infrastructural investment in strategic national assets and is essential for the continued provision of a secure and reliable electricity supply. This is particularly the case within electricity generation stations including Ardnacrusha hydro-station (86MW) on the river Shannon, Inniscarra & Carrigadrohid hydrostations (27MW) on the river Lee and three thermal plants, one at Moneypoint (915MW) and two thermal stations at Aghada (270MW & 435MW)".

5.2.3. It is stated that "the RSES supports a safe, secure and reliable system of transmission and distribution of electricity and the successful implementation of the Ireland's Grid Development Strategy, Your Grid, Your Tomorrow, prepared by EirGrid. The transmission grid is currently robust enough to service the growth strategy for the Region and demand locations".

5.2.4. The following Regional Policy Objectives are noted:

- RPO 219 - New Energy Infrastructure and states that "it is an objective to support the sustainable reinforcement and provision of new energy infrastructure by infrastructure providers (subject to appropriate environmental assessment and the planning process) to ensure the energy needs of future population and economic expansion within designated growth areas and across the Region can be delivered in a sustainable and timely manner and that capacity is available at local and regional scale to meet future needs".
- RPO 222 - Electricity Infrastructure states that "it is an objective to support the development of a safe, secure and reliable supply of electricity and to support and facilitate the development of enhanced electricity networks and facilitate new transmission infrastructure projects that might be brought forward in the

lifetime of this plan under EirGrid's (2017) Grid Development Strategy (subject to appropriate environmental assessment and the planning process) to serve the existing and future needs of the Region and strengthen all-island energy infrastructure and interconnection capacity".

Local Planning Context

5.3. **Clare County Development Plan 2017-2023**

5.3.1. Moneypoint and the environs of same is located within the administrative area of Clare County Council.

5.3.2. Chapter 6 of the current County Development Plan addresses economic development and enterprise. Section 6.3.7 of the Plan deals with Moneypoint Power station and states "Moneypoint is one of Ireland's largest electricity stations, located on the Shannon Estuary near Kilrush. It has a capacity to generate up to 915MW of electricity each year and is capable of meeting approximately 25% of Ireland's demand for electricity. It is primarily fuelled by coal, brought ashore via the ESB's deepwater port on the Shannon Estuary. The plant, when combined with Tarbert on the south shore, forms a significant industry and energy hub on the estuary. Moneypoint is identified as a Strategic Development Location in the Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary and the lands are zoned for Marine-Related Industry". Development Plan Objective CDP6.10 relates to Moneypoint Power Station and its potential future diversification.

5.3.3. Section 6.3.14 of the Plan addresses Energy. The following Development Plan objective is of note: CDP6.17 – energy supply where it is an objective *'to contribute to the economic development and enhanced employment opportunities in the County by:*

(a) Facilitating the development of a self-sustaining, secure, reliable and efficient renewable energy supply and storage for the County;

(b) Enabling the County to become a leader in the production of sustainable and renewable energy for national and international consumption through research, technology development and innovation'.

5.3.4. Chapter 8 of the Plan deals with Physical Infrastructure, Environment and Energy. Section 8.7 of the Plan addresses Seveso Sites with Moneypoint an Upper Tier site. Section 8.8 addresses energy and communications. Development Objective CDP8.37

addresses energy security with the objective *'to promote and facilitate the achievement of secure and efficient energy supply, storage and distribution for County Clare'. Section 8.8.4 relates to the electricity network with CDP8.38 stating the following:*

> *"(a) To facilitate improvements in energy infrastructure and encourage the expansion of the infrastructure within the County;*
>
> *(b) To facilitate future alternative renewable energy developments and associated utility infrastructure throughout the County;*
>
> *(c) To collaborate with Eirgrid to facilitate the delivery of quality connection, transmission and market services to electricity generators, suppliers and customers utilising the high voltage electricity system in County Clare;*
>
> *(d) To collaborate with Eirgrid over the lifetime of the Plan to ensure that the County's minimum target of 966MW renewable energy generation is achieved and can be accommodated on the electricity network in County Clare;*
>
> *(e) To have regard to environmental and visual considerations in the assessment of developments of this nature".*

5.3.5. Chapter 11 of the Plan specifically addresses the Shannon Estuary. Section 11.3.3.2 deals with Moneypoint. Development Plan Objective CDP11.6 dealing with the Moneypoint which is designated as Strategic Development Location B (Map 11B).

5.3.6. Chapter 13 deals with Landscape with Development Plan Objective 13.4 addressing the Shannon Estuary Working Landscape where it is stated that it is an objective of the Development Plan:

> *"(a) To permit development in these areas that will sustain economic activity of regional and national significance – especially through the protection of resources to sustain largescale energy projects, logistics, large-scale manufacturing and associated infrastructure. All such developments shall be required to conform to relevant management and conservation objectives for designated and protected habitats and species within the estuary;*
>
> *(b) That selection of appropriate sites in the first instance within this landscape, together with consideration of the details of siting and design, are directed towards reducing visual impact and that residual visual impacts are minimised;*

(c) That particular regard should be given to avoiding intrusions on scenic routes and on ridges or shorelines. Developments in these areas will be required to demonstrate:

i That sites have been selected to avoid visually prominent locations wherever feasible;

ii That site layouts avail of existing topography and vegetation to reduce visibility from scenic routes, walking trails, public amenities and roads;

iii That design for buildings and structures reduce visual impact through careful choice of form, finish and colours and that any site works seek to reduce visual impact of the development"

5.4. Kerry County Development Plan 2015-2021

5.4.1. The site is located within an area identified in the plan as the Tarbert/Ballyongford Industrial Landbank. The Plan under variation 1 makes specific reference to the zoning of the Tarbert /Ballylongford Land Bank, for marine-related industry, compatible or complimentary industries and enterprises which require deep water access.

5.4.2. The current plan addresses economic development and employment at Chapter 4. Section 4.6 deals with the Shannon Estuary and states that "the Shannon Integrated Framework Plan (SIFP), facilitates the diversification of the economy, through the promotion of commercial/industrial employment, environmentally friendly aqua culture, maritime, energy, transport, recreation and tourism industries in a sustainable manner. It also sets out the importance of safeguarding the Estuary's sensitive environmental resources and natural heritage of national, European and International significance. The SIFP has undergone its own Strategic Environmental Assessment and Appropriate Assessment process. The Council will have regard to the provisions of the SIFP and its environmental reports in the assessment of proposals for development in this area. Kerry County Council recognises the Shannon Estuary as a major shipping artery and further recognises the ongoing potential of the Tarbert Ballylongford landbank to be sustainably developed for Industry". Objectives ES-22-24 deal with matters related to the implementation of the SIFP.

5.4.3. Section 4.11.1 of the Plan addresses the Prevention of Major Hazardous Accidents with two sites in Kerry both of which are in Tarbert (National Oil Reserve Agency and Scottish Sustainable Energy Site).

- Objective EP-1 - Support and facilitate the sustainable provision of a reliable energy supply in the County, with emphasis on increasing energy supplies derived from renewable resources whilst seeking to protect and maintain biodiversity, archaeological and built heritage, the landscape and residential amenity.
- Objective EP-3 - Facilitate sustainable energy infrastructure provision, so as to provide for the further physical and economic development of the County.
- Objective EP-4 - Support and facilitate the sustainable development of enhanced electricity and gas supplies, and associated networks, to serve the existing and future needs of the County.
- Objective EP- 7 - Facilitate the sustainable development of additional electricity generation capacity throughout the region/county and to support the sustainable expansion of the network. National grid expansion is important in terms of ensuring adequacy of regional connectivity as well as facilitating the development and connectivity of sustainable renewable energy resources.

5.5. **Strategic Integrated Framework Plan for the Shannon Estuary (2013-2020)**

The SIFP is an inter-jurisdictional land and marine based framework plan to guide future development and management of the Shannon Estuary. The plan identifies Money Point Power Station and Tarbert Power Plant as having created a strategic power hub within the Shannon Estuary, identifying the area of Money Point Power Station and the area between Ballylongford and Tarbert Power Plant as Strategic Development locations. Of particular relevance is the following objective:

- SIFP ERGI 1.5 Electricity Network

  To support and facilitate the sustainable development, upgrade and expansion of the electricity network, transmission, storage and distribution infrastructure ensuring that all such developments comply with the requirements of the Habitats & Birds Directives, Water Framework Directive and all other EC Directives.

Legislative Context

Strategic Infrastructure Development

5.6. Section 182A(1) of the Planning and Development Act, 2000 (as amended) requires, where a person (referred to as the 'undertaker') intends to carryout development comprising or for the purposes of electricity transmission, the undertaker shall prepare an application for approval of the development to the Board. Section 182A(9) of the Act states that the term 'transmission' shall be construed in accordance with section 2(1) of the Electricity Regulation Act 1999, and for the purposes of section 182A, shall also be construed as meaning the transport of electricity by means of a high voltage line (equal to or greater than 110kilovolts) or an interconnector (whether ownership of the interconnector will be vested in the undertaker or not).

5.7. Section 2(1) of the Electricity Regulation Act, 1999 defines transmission as '*…the transport of electricity by means of a transmission system, … a system which consists, wholly or mainly, of high voltage lines and electric plant and which is used for conveying of electricity from a generating station to a sub-station, from one generating station to another, from one substation to another or to or from any interconnector or to final customers but shall not include any such lines which the Board may, from time to time, …specify as being part of the distribution system …'*

5.8. Electric plant is defined as '*any plant, apparatus or appliance used for, or for purposes connected with, the generation, transmission, distribution or supply of electricity, other than by (a) an electric line, (b) a meter…, or (c) an electrical appliance..'*

5.9. **Natural Heritage Designations**

The proposed development traverses the Lower Shannon Estuary SAC which is designated for the following qualifying interests:

- 1029 - Freshwater Pearl Mussel Margaritifera margaritifera
- 1095 - Sea Lamprey Petromyzon marinus • 1096 - Brook Lamprey Lampetra planeri
- 1099 - River Lamprey Lampetra fluviatilis
- 1106 - Atlantic Salmon Salmo salar (only in fresh water)

- 1110 - Sandbanks which are slightly covered by sea water all the time
- 1130 - Estuaries
- 1140 - Mudflats and sandflats not covered by seawater at low tide
- 1150 - *Coastal lagoons
- 1160 - Large shallow inlets and bays
- 1170 - Reefs
- 1220 - Perennial vegetation of stony banks
- 1230 - Vegetated sea cliffs of the Atlantic and Baltic coasts
- 1310 - Salicornia and other annuals colonizing mud and sand
- 1330 - Atlantic salt meadows (Glauco-Puccinellietalia maritimae)
- 1349 - Bottlenose Dolphin Tursiops truncatus
- 1355 - Otter Lutra lutra
- 1410 - Mediterranean salt meadows (Juncetalia maritimi)
- 3260 - Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation
- 6410 - Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)
- 91E0 - *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)

Priority habitats denoted by *. Conservation Objectives for the site are dated August 2012.

5.10. **EIA Screening**

5.11. As mentioned above the proposed development was not considered to constitute a project with either Annex I or Annex II of the Directive 2011/92/EU as amended by 2014/52/EU or within Part 1 or Part 2 of Schedule 5 to the Planning and Development Regulations 2001, as amended. An Environmental Impact Assessment Report was therefore not required to accompany the application.

6.0 **Assessment**

6.1. The proposed development is located within a mix of landscape types which include existing heavy industry at Moneypoint Power Station and Kilpaddoge, rural agricultural lands, shoreline and the submarine estuary floor. Whilst the proposed cable is not a significant development in the context of such heavy industry facilities at Moneypoint and Kilpaddoge, the laying of such a cable along the estuary floor and the required landfall of the cable within the shoreline to the north and south of the Shannon Estuary gives rise to a number of potential impacts.

6.2. Prior to the examination of these potential impacts, it is firstly important to note that further information was requested and responded to by the applicant in relation to the potential presence of archaeology, adequacy of bird surveys submitted and the potential of the development to impact wave energy testing sites. The applicant was also requested to review the submissions made to the application and respond accordingly. The information submitted was not considered to be significant and therefore re-advertisement was not required. The further information received has been listed above and will be considered within the below assessment.

6.3. The applicant has submitted an Environmental and Planning report and a Natura Impact Statement in support of the proposed development which will be examined in detail below. It is of note that there is an existing 220 kV line connecting Moneypoint to Kilpaddoge via the Shannon Estuary. This cable was laid in 2006 and was considered to be exempt development at that time. The main issues for consideration before the Board include:

- Principle of development
- Impacts on Human health & population
- Impacts on Biodiversity
- Impacts relating to EMF
- Impacts on Geology
- Impacts on water quality and flooding
- Impacts on Archaeology

- Noise and dust generation
- Visual Impact
- Marine Traffic
- Other Matters
- Appropriate Assessment

6.4. Whilst the foregoing issues will be examined in detail within the following assessment, I draw the Board's attention to a number of key issues pertaining to the development which have been raised within the submissions received and have been addressed by the applicant in their response to the further information request. These include the principle of the proposed development in the context of the Strategic Integrated Framework Plan for the Shannon Estuary (2013-2020), the potential for archaeology to be present within the development site and the quality of baseline data in relation to birds. The applicant has provided a detailed response to these issues which will be examined in detail within the following assessment of the development.

6.5. It is also of importance to note at this juncture that the proposed works as outlined above will include works within the foreshore and the high water mark, any such works will be carried out under licence. I draw the Boards attention to Section 34 (13) of the Planning and Development Act, which states that the granting of permission does not entitle a person to carry out development and covers the eventuality that the development cannot be implemented for legal reasons.

6.6. Whilst, as aforementioned, works within the foreshore and high water mark will be subject to licence, a full examination of the project in its entirety will be carried out hereunder in the interest of clarity and for the purpose of Appropriate Assessment.

Principle of the Development

6.7. As outlined in section 5 above, key strategic policies and objectives set out in national, regional and local development plans supports and requires the investment in Irelands grid as a key driver of a robust and sustainable economy for the country.

6.8. The National Planning Framework and RSES for the region support the notion of a strong economy supported by enterprise, innovation and skills. The National Development Plan recognises that a strong national infrastructure in terms of energy

supply is critical to the delivery on such objectives and promotes grid infrastructure and improvements as a key enabler of economic growth.

6.9. At a local level the Clare County Development Plan 2017-2023 within objective CDP6.17, recognises the economic importance of facilitating the development of self sustaining, secure, reliable and efficient renewable energy resources and makes specific reference to supporting the diversification and expansion of Moneypoint Power Station.

6.10. Similarly, as outlined above in section 5, the Kerry County Development Plan recognises the importance of facilitating provision of sustainable energy supply and the expansion of the national grid to provide for the connectivity of renewable energy resources.

6.11. It is of note that the proposed development, as outlined in Section 1.3.2 of the Planning and Environmental Considerations report, is required to facilitate the connectivity of high levels of renewable energy generation which is currently being integrated into the south west of Ireland. It is stated within the information submitted that at times of medium to high wind generation output, it is expected that the south west of Ireland will export the excess generation to areas where it is needed. To be able to facilitate this large power flow from the west and south west of the country towards the east coast, a reinforced system is required across the Shannon. The applicant contends that the proposed development forms part of a regional solution consisting of a suite of reinforcement projects designed to maximise the capabilities of the existing network. Such projects are outlined in the EirGrid group Strategy 2020-2025 which seeks to ensure that 70% of all electricity in Ireland is generated from renewable sources by 2030, this target is also set out within the Climate Action Plan 2019. Essential to the achievement of this target is the upgrade of the electricity system to cater for these new sources of energy and to allow intermittent sources of power to supply the grid. It is the policy of the Climate Action Plan to continue to support EirGrid's ambitious multi-year programme, Delivering a Secure, Sustainable Electricity System (DS3), which has already made Ireland a world leader in the management of intermittent forms of renewable electricity, such as wind, on the grid, with levels of instantaneous wind penetration reaching 65%+.

6.12. Having regard to the foregoing the overriding policy position is in support of such infrastructure. However, I note the concerns of Clare County Council in which they state that the proposed development is within an area zoned for tidal energy testing as per the Strategic Integrated Framework Plan for the Shannon Estuary (2013-2020). The Council state within their submission that the location has been selected due to its ability to provide the required depth of water to undertake testing for tidal energy. It is further stated that whilst the Council acknowledges the strategic importance of bringing wind energy captured in the southwest onto the transmission system this should be balanced with the needs of other renewable technologies such as tidal devices.

6.13. I note from the SIFP document that Money Point is recognised as a strategic asset that should be safeguarded to ensure the continuation of core power generation, transmission and distribution functions and to ensure that future expansion and re-development requirements in this area are not compromised by inappropriate neighbouring land uses or activities. I further note that figure 5.13 of Volume III of the SIFP document identifies the proposed cable location and labels this as proposed subsea cable.

6.14. Having regard to the overwhelming support of grid infrastructure improvements at Money Point Power Station at a national, regional and local level, the level of current developed and permitted wind energy developments within the south west region and the importance of upgrading the national grid in order to optimise this wind energy to serve the country, together with the requirements of the Climate Action Plan to achieve a 70% renewable source of energy by 2030, I consider it unreasonable to prevent such critical infrastructure on the basis of a framework plan which has now expired.

6.15. Further to the foregoing, I draw the Boards attention to the Marine Energy Portal which is the governments resource for prospective investors in relation to renewable energy infrastructure. This portal which has been created by Sustainable Energy Authority of Ireland (SEAI) and the Marine Institute and provides up to date information in relation to potentially suitable offshore energy sites.

6.16. It is of note that tidal energy testing sites have been identified within this portal and were reviewed in recent years. These sites are presented on Ireland's Marine Renewable Energy Atlas. I note that the areas identified do not conflict with the route

of the proposed cable, the closest being to the south west of the cable route. Thus, given that the existing SIFP is now beyond its life I do not consider it reasonable to refuse permission given the up to date information now available as mentioned.

6.17. Overall having regard to the foregoing and the overriding support for the expediting of grid upgrades at a National, Regional and Local Level, I consider the proposed development to be acceptable in principle and in accordance with the policy provisions of the National Planning Framework, the RSES for the Southern Regional Assembly, the Climate Action Plan 2019, and the Clare County Development Plan 2017-2023 and the Kerry County Development Plan 2015-2021, subject to compliance with the Habitats Directive and relevant environmental and sustainable planning principles.

Environmental considerations

6.18. As mentioned above the proposed development is not of a class for the purpose of EIA and as such an EIAR is not required for the proposed works. Nonetheless, the applicants have submitted an environmental report, which outlines and examines the potential for impacts to arise within the surrounding environment which will be examined as follows.

Alternatives

6.19. Section 3 of the environmental report submitted examines the various options considered at the conception stage of the development. The environmental impacts of each option were heavily weighted within the matrix. A fully landed cable would consist of c. 100-140 Kilometres of cabling under the public road, an alternative route was via overhead lines across the estuary, neither of which were considered reasonable, suitable or sustainable. A number of land fall sites were considered in relation to the underwater cable as were a number of routes across the estuary. All routes, landfall locations and type of cable considered are set out in section 3 of the environmental report.

6.20. The results of the options considered were inserted into the EirGrid performance Matrix and the best performing option (which is that proposed) emerged.

6.21. The proposed preferred option sought to avoid or reduce potential environmental effects through the rerouting of the cables. The design of the preferred option was further refined and optimised to address the potential impacts associated with the

technical and environmental challenges as set out in the evaluation process. The preferred option was considered to carry the least environmental risk and was the optimal option in terms of the location and landing points of the proposed cable and the preferred location of the substation from an operational perspective. I am satisfied that the applicant has adequately considered various options for the proposed development and that the preferred option carries a reduced environmental impact to others considered.

Consultation

6.22. The applicants engaged in a series of public consultation methods, placing the proposal on social media, holding public meetings and speaking directly with local landowners. It is stated within section 5 of the planning and environmental considerations report that feedback from consultations was generally positive and I note that no third-party submissions have been received.

Population and human beings

6.23. Section 6 of the report submitted outlines the potential for impacts to arise in relation to population and human health. Key issues in relation to population and human health in the context of the proposed development are considered to include land use and demographic profile, tourism, economic profile, recreation and amenities. In order to examine such issues a desk top study was carried out, publications and other data sources such as County Development Plans, RSES and the Census data were all consulted to inform the assessment for potential effects.

6.24. Findings from EirGrids evidence based Environmental study on settlement and land use established that there is no evidence of any significant impact arising from the construction or existence of transmission infrastructure in terms of patterns of settlements and land use. Nonetheless, such impacts were considered by the applicant within the environmental and planning report submitted.

6.25. Potential impacts arising during the construction of the development in relation to population and economic profile are expected to be short term and positive. An increase of 45 employees will be required during the construction period which are expected to come from the surrounding area. Impacts on land use are not expected to be significant given that the majority of works are to be carried out on ESB owned

lands. A temporary minor impact on marine traffic is anticipated along the installation corridor and will be examined below within the traffic section.

6.26. The proposed landfall works will be carried out in the intertidal zone both north and south of the Shannon Estuary. Large areas of these lands are inaccessible to the public with the exception of Glencloosagh Bay on the southern shoreline. It is mentioned in section 6.5.1 of the Environmental and Planning report that the area of the works will be restricted during construction and retained thereafter. Given that the proposed development is for a limited time no long term impacts are anticipated in relation to tourism, recreation or amenities.

6.27. Once developed it is anticipated that the proposed development will not have a permanent impact on the population of the area and its wider environs in terms of social changes, or population trends and density, tourism recreation and amenities or health and wellbeing.

6.28. Section 6.6 of the report submitted acknowledges that construction activities have the potential to create a nuisance and cause disruption. However, given the nature of the proposed works no mitigation is required in relation to impacts on population and human health in terms of the foregoing. Thus, having regard to the information submitted I am satisfied that the potential for impacts on population and human health can be avoided and therefore do not arise in relation to the proposed development.

6.29. It is important to note at this juncture that impacts to population and human health arising from noise, traffic, air and dust will be examined later in the report.

Biodiversity

6.30. Section 7 of the Environmental and Planning Report outlines the potential for impacts to arise in relation to Biodiversity. The study area comprises all marine waters and lands located within the zone of influence of the proposed development. It is stated within the information submitted that the zone of influence within the marine extends to c. 4km upstream and downstream of the development.

6.31. The impact of the proposed development on European sites is addressed in detail in Section 7 of this report. The proposed works will be carried out within the Lower River Shannon SAC and the River Fergus and River Shannon SPA.

6.32. The risk of water pollution to these sites can be excluded due to the mitigation measures proposed, and the dispersion and dilution effects of the estuary.

6.33. While the potential for effects on the qualifying interests of these sites is remote due to the nature of the works, the location of the qualifying interests in relation to the works and the location of a significant amount of development being located within existing industrial lands and mitigation measures proposed, it is necessary to dispel any reasonable scientific doubt that may exist. The NIS Report submitted considers the potential for effects on both the aforementioned SAC and SPA and in combination with other plans or projects and considered that the proposed development would not give rise to adverse affects.

6.34. I am satisfied, based on the information submitted with the file and discussed within the Appropriate Assessment section below, that the applicant has adequately demonstrated beyond reasonable scientific doubt that the proposed development would not adversely affect the integrity of this SPA and SAC in view of these sites Conservation Objectives.

6.35. Potential impacts on biodiversity associated with the proposed development include loss of habitat and disturbance or displacement of species. The assessment of impacts is supported by an ecological assessment, a desk top study which was carried out in 2019 and habitat surveys, consisting of site walkovers of the potential landfall sites and surrounding onshore habitats which were carried out on a number of occasions on the 15th February 2017, 24th April 2018, 14th March, 4th April and 30th September 2019 and 19th June 2020.

6.36. The area was also searched for the presence of invasive plant species and none were observed. It is stated within section 7.2.4.1 of the Environmental and Planning report submitted, that onshore areas on either side of the estuary were also examined for the potential for amphibian sites, birds, mammal tracks, otter sprainting sites and holts and badger setts. The report does not document observing any such sites.

6.37. Intertidal transects of the marine sections of the landfall sites were undertaken to document algae and macroinvertebrates species and to examine and describe habitats present. Section 7.2.4.2 of the Environmental and Planning report submitted states that these surveys were undertaken within spring tide conditions on the 29th & 30th September 2019. Areas were examined at high, medium and low tide.

6.38. Core samples of sediment were taken to examine fauna and sedimentary analysis. Subtidal surveys were also undertaken in December 2019 in order to describe faunal communities and their component species. The applicant states that permission was obtained for such surveys and sample taking from NPWS given that the proposed works are within the River Shannon and River Fergus Estuaries SPA and the Lower River Shannon SAC.

6.39. Section 7.2.4.3 outlines that given the sediment modelling and the marine surveys undertaken a buffer area of 250m either side from the centre line of the proposed cable route was considered representative of the subtidal habitat encountered along the route corridor. I consider this approach to be reasonable. 4 samples were taken at each location and analysed for species and sediment type. In order to further establish the baseline data for the development site the applicant outlined the general species and habitats listed within the Natura 2000 sites within which the development will be located. This list is noted within section 7.3.1 of the report and will not be repeated here. Qualifying interests of these site are examined in detail within the Appropriate Assessment section below.

6.40. It is important to note at this juncture, that concerns were raised by the DAU in relation to shoreline bird data and the omission of same. The applicant addressed this concern within the further information submitted and stated that an extensive water-bird survey of the River Shannon and River Fergus Estuaries was carried out in 2017/18 by McCarthy Keville O'Sullivan (MKO, 2019). The survey was commissioned under the Strategic Integrated Framework Plan review (SIFP) for the Shannon Estuary 2013-2020. The SIFP survey data were considered to determine the level of importance for bird numbers and usage of the proposed cable route and landfall sites at Moneypoint on the Clare coast and Kilpaddoge on the Kerry coast. It is stated within the information provided that the majority of the shoreline at the Moneypoint landfall is not exposed at low tide and the area is therefore of reduced significance for waterfowl in terms of a feeding resource or a roosting site, relative to extensive areas of exposed intertidal habitat elsewhere in the Shannon Estuary.

6.41. Surveys during conditions of clear visibility at mid-tide on 4 November 2020, EirGrid's ecologist recorded only a single oystercatcher within c. 1 km of the Moneypoint landfall and a single grey heron in the nearby quarry.

6.42. There is some muddy shoreline at low water at Killimer and this provides some potential feeding and roosting habitat for a variety of waterbirds including dabbling ducks, waders and gulls. On 4 November 2020 EirGrid's ecologist recorded, within approximately 1 km of the proposed Killimer landfall at low tide, a peak of two oystercatcher roosting/feeding amongst rocks, a single feeding curlew and a single Red throated diver in near shore waters.

6.43. The SIFP data presented in the MKO (2019) report show that the area where the proposed cables will cross is not an important site for total numbers of birds. The area scored low to medium in terms of mean species richness and mean total numbers per count. The same area was also shown to be of limited use as bird flocking and roosting sites. The reasons for the area not being an important area for waterbirds is most likely due to the lack of suitable substrate e.g. sand or mud flats that are exposed at low water. Another factor for the Clare side is potentially due to disturbance due to shipping coming in and out of Moneypoint and the ferry service at Killimer. Having regard to the foregoing I am satisfied that the proposed development will not significantly impact bird populations in the area and as such is acceptable in this regard.

6.44. Records of rare or protected flora and fauna within 10km of the development site were obtained from NPWS, National Biodiversity Data Centre for bat species only and Botanical Society for Britain and Ireland were consulted, as were the Irish Whale and Dolphin Group to determine which cetacean species occur in that part of the Shannon. It is also stated by the applicant that Aquafact (consultants undertaking the ecological and biodiversity impact assessment) were involved in a number of previous marine studies in the area and also utilised the results of these studies to inform the overall assessment of potential impacts.

6.45. The online Atlas of Vascular Plants 2010-2020 and the National Invasive Species Database show **no protected or invasive plant species within the development boundary,** this was confirmed by the walkovers carried out within the site as listed above**.**

6.46. Marine Survey results are listed in table 7.2 of the Environmental and Planning report submitted and show **no protected marine invertebrates species were encountered within the development area**. A list of vertebrates is included in table 7.2 and their legal protection stated within the table.

6.47. It is stated within section 7.3.3 of the environmental and planning report submitted that the proposed Kilpaddoge AIS extension and associated underground cable connection is located predominantly within agricultural grasslands, parts of which are heavily poached by stock. The habitat at this location is described as grassland habitat and dry meadow with grassy verges and are considered to be of low ecological value as the habitat is common throughout the wider environs and contains low diversity of species. Significant impacts at this location in terms of biodiversity are therefore unlikely.

6.48. At the Moneypoint site the terrestrial habitat is dominated by Gorse, Blackthorn and Ivy with some bracken. Circa 250 metres of the underground cable will pass through private lands which comprise of predominantly agricultural grasslands and scrub. The remainder of the underground cable will run along an existing internal track located to the east of the existing 220kV cable connection and north of the existing coal yard and ash storage area. No habitat of significance is present along this part of the route, thus I am satisfied that significant impacts in relation to biodiversity are unlikely at this location.

6.49. Part of the cable will descend to the sea over low hard cliff habitat at the Moneypoint side of the estuary. **No maritime plant communities were encountered at this area of the development and as such this area of cliff habitat is not of any significant importance in relation to biodiversity value**. I note that the applicant observed Annex I sea cliff habitat c. 200 metres east of the landfall site, however given the separation distance between the development and this habitat, impacts are not expected to arise.

6.50. It is of further note that **no species listed under the Flora Protection Order or habitats protected under the Habitats Directive were recorded within the terrestrial or foreshore footprint of the proposed development** site during surveys. Having regard to the foregoing, significant impacts in terms of biodiversity within the terrestrial and foreshore areas of the development are not considered to arise.

6.51. The proposed cable will run from the highwater mark across the estuary in waters with a maximum depth of 60 metres. The applicants state that substrate type between 0-30 metres towards the southern shore consist of a mix of sand, slightly gravelly sand,

gravelly sand and mud and sandy gravel. At 30-60 metres the substrate consists of rocky seabed with boulders, cobbles and gravel. The location of marine habitats are derived from the NPWS mapping of the Lower River Shannon SAC. Habitats that overlay the cable route include subtidal sand to mixed sediment with Nucula nucleus community complex and Laminaria dominated community complex.

6.52. Section 7.3.3.1 outlines the habitats and communities which have been previously recorded in this section of the estuary within surveys carried out in 2007 and 2008 by Aquafact. Given the nature of the proposed works and the installation process proposed, I am satisfied that displaced sediments will recover within a short period of time and therefore I consider impacts would not be of a magnitude as to give rise to significant effects, further potential impacts in relation areas such as reef habitat will be examined further within the Appropriate Assessment below.

Impacts in relation to EMF

6.53. It is of note that within their submission to the proposed development, the DAU make reference to the potential for impacts to arise in relation to Electromagnetic Fields. Concerns are raised in relation to the potential for effects to arise in relation to migrating sea lamprey and other fish. The department notes that the NIS submitted does not consider that such effects are likely however, queries the origin of the evidence relied on in this regard.

6.54. It is important to note at this juncture that effects in relation to qualifying interests of the Lower River Shannon SAC are considered within the Appropriate Assessment Section of this report but will nonetheless be referred to hereunder in the context of all marine species within the development site.

6.55. The applicant's FI response states that fish species such as salmon are stated to use magnetic cues for orientation or navigation, however it is likely that these cues are used at a large spatial scale and during the oceanic phase of outward and homeward migrations.

6.56. Once an appropriate coastal region is identified, migration to home (natal) rivers is likely dependent on olfactory cues, with chemical cues extending from natal rivers strongly implicated in the final phases of salmonids migrations. Thorstad et al. (2011) suggested that once salmon have reached sheltered fjords and sea lochs olfactory cues are the most important sense for homing. Given that the last phase of the

spawning migration in salmonids is primarily governed by olfactory cues (Thorstad et al. 2011) it is concluded by the applicant that salmonid species migration will not be significantly affected by EMF produced by the Cross Shannon cable.

6.57. The applicant states that the situation is similar in relation to the migration of European eels. The further information submitted includes reference to a European study by Westerberg and Lagenfelt (2008) which '*assessed migration behaviour of the European eel passing an underwater high voltage cable extending between the Swedish mainland and the island Öland. The study reported that while eel reduced its swimming speed when crossing the cable there was no evidence that the cable was acting as an obstruction to migration. Similarly, a two-year field study of migrating Silver eels passing the Baltic Cable showed the species crossed the cable with the same probability as if it were absent'.*

6.58. The applicant further cites studies carried out in relation to the decapod crab, the lesser spotted dogfish, Thornback Ray and the decapod lobster whereby subtle changes to exploratory behaviour were observed but while the behavioural changes are likely to have biological relevance in terms of how the animals will move around and be distributed within a cable EMF zone, it is considered that EMFs did not constitute a barrier to movements across the cable for either lobsters or skates. Consequently, the applicant concludes that EMF produced by the proposed development is unlikely to significantly affect decapod or elasmobranch species.

6.59. Having regard to the information submitted and the findings within, I am satisfied that the applicant has adequately demonstrated that the proposed cable will not give rise to significant effects on marine species in relation to EMF.

Overall impacts of any significance in relation to biodiversity within the terrestrial and foreshore environment are not expected to arise. In relation to Marine biodiversity, I am satisfied that the applicant has adequately demonstrated that impacts will be short term in duration and insignificant in nature.

Geology & Hydrogeology

6.60. Section 8 & 9 of the Environmental and planning report examines the potential for impacts to arise in relation to the geology, land, sediment and hydrogeology of the development site. Seabed surveys have been undertaken in order to examine

geological features and the potential impacts of the development and ground investigation works were undertaken in 2018.

6.61. 12 trial pits were excavated, six in the elevated road which borders the ash and coal yard and a further 6 were excavated to the east of the power station above the foreshore. Ground conditions were as expected in such areas comprising of sandy clayey gravel near to the foreshore, backfilled material in the access roads and sandy gravel with cobble within the eastern holes.

6.62. Significant sand waves were identified within the vicinity of the route, some with amplitudes as large as 5 metres. It is proposed to avoid such areas and to engage a pre-installation clearance technique in order to ensure that any debris or sediment obstructions are minimised prior to cable laying. This will ensure that integrity of the cable as it is laid and avoid future damage.

6.63. Sediment and boulder movement will be short term and limited in terms of impact. Given the nature of the seabed within the estuary in which sediment movements vary with velocities and flows I consider that the practice of pre-installation clearance will not have any significant long term effect on the integrity of the seabed. Sediment will move and resettle over a short period in line with the changes in current and velocity of the flows in the estuary.

6.64. It is stated that at the landfall areas bedrock geology and superficial sediment will be locally disturbed by limited excavation in order to reduce any long term impacts it is proposed to reuse existing bedrock in the construction of the landfall sites. I consider this approach to be acceptable and is common practice in such developments.

6.65. The applicants have considered and modelled sediment dispersion in relation to the proposed development. Given the estuarian environment, the nature of the proposed works and the limited period in which they are to be carried out it is considered that sediment dispersion will be limited and insignificant in the context of sediment movement within this area of the estuary. The applicants have sought to place the route of the cable within the lowest sediment movement areas available. Model results show up to 2mm of sediment deposition towards the south of the cable route, less than 1mm towards the shoreline where the velocity of flow is slower and up to 20mm inside the small bay to the south east of the cable. Such movement will not result in large build ups of sediment over the cable but will allow for a replacement and settlement of

sediment within the development route. Having regard to the foregoing significant impacts are not anticipated.

6.66. Whilst I note that investigations do not give rise to concerns in relation to erosion at the shoreline, the applicant nonetheless proposes measures to ensure that such erosion is further limited and will prevent potential landslides at the cliff, through the installation of a rock revetment at the toe of the concrete slipway structure. It is proposed to monitor this structure on a yearly basis for early signs of erosion.

6.67. Furthermore, and notwithstanding the application of modelling to sediment movements within the estuary, the applicant proposes to engage in periodic marine survey inspections over the 'as built' location of the cables in order to monitor the movement of sand waves and determine the cable burial depth. I consider this approach to be reasonable. Periodic monitoring will ensure that this critical infrastructure is functioning at its highest capacity at all times.

6.68. GSI web mapping classifies ground water vulnerability as ranging from high to extreme at both Moneypoint and Kilpaddoge onshore site. Mitigation measures are proposed to protect ground water in these areas and include the use of bunded areas for the storage of hydrocarbons, a minimisation of the depth of excavations, backfill of excavations at the toe to prevent landslide, avoidance of high stockpiles, testing of imported material, the use of drip trays and silt fences and waste segregation. All such measures are standard in practice and are considered to be acceptable methods of protection for the environment. I consider subject to the implementation of mitigation measures proposed that residual impacts are not likely to arise in this instance. I am satisfied that the applicant has adequately demonstrated that impacts to geology, hydrogeology and land are short term in duration and insignificant in nature.

Water and flood risk

6.69. Section 10 of the Environmental and Planning report examines the potential for impacts to arise in relation to water quality and flood risk. It is stated within Section 10.3 that the Lower River Shannon has been identified as has having a 'Good' water quality status by the EPA, however the transitional waters are considered to be at risk due to fish status. As mentioned above the Lower River Shannon is a designated Natura 2000 site, impacts to water quality in relation to the qualifying interests of this site are discussed in section 7 below and will not be repeated in this section.

6.70. The estuary is an important area for commercial aquaculture and there is a licenced shellfish facility partially located within the proposed development boundary at Moneypoint. All marine waters within the development boundary are considered to be of high importance and sensitivity.

6.71. Potential impacts to water quality in relation to the onshore grid connection and substation works relate to the potential for contamination of watercourses. I note, in this regard, that with the exception of minor field drain crossings there are no instream works proposed at such onshore locations. No changes are therefore proposed to the morphology of the onshore surface water network. Mitigation measures are proposed to protect the onshore surface water network and are examined within the Appropriate Assessment Section of this report. Such mitigation measures include the use of silt traps and hydrocarbon interceptors and the installation of shut off values in manholes.

6.72. I am satisfied that the mitigation measures proposed are adequate and will ensure that significant impacts to water quality do not arise.

6.73. In relation to flooding it is noted that the proposed onshore works will be connected to the surface water drainage system at Moneypoint and Kilpaddoge, furthermore onshore works are within flood zone C. The applicant states that the proposed works will not give rise to or exacerbate flooding either within the site or within the surrounding area. Having regard to the nature of the proposed works and their location largely within existing serviced industrial lands I am satisfied that the proposal will not give rise to flooding.

6.74. Overall, having regard to the information submitted I am satisfied that the applicant has clearly demonstrated that water quality will not be negatively impacted upon as result of the proposed development. I am further satisfied that the proposed development due to its nature and location will not give rise to flooding in the area.

Archaeology

6.75. Section 11 of the Environmental and Planning report examines the potential for impacts to arise in relation to archaeology and cultural heritage. It is important to note at the outset that as a consequence of submissions received, further information was requested in relation to archaeology. Concerns were raised by Kerry County Council in relation early prehistoric archaeological potential both within and immediately above the intertidal area. Kerry County Council states within their submission, that a

comprehensive programme of archaeological testing of all areas of proposed ground disturbance along the cable route is essential to fully assess the potential impact of the proposed development.

6.76. Similar concerns were raised by the DAU within their submission, in which it is stated that there is a high potential for further archaeological material to be present around the development site. An exclusion zone of 100 metres is requested by the DAU around SS12 (which is an anomaly shown on the sonar scan). It is stated that, in the event that this exclusion zone cannot be provided a dive survey should be carried out to investigate this anomaly. Reference is also made to the scan sonar anomaly M10. The Department does however state that it has no objection to a licence being issued subject to a number of conditions which include avoidance of the aforementioned anomalies or further dive investigations to be carried out at this sites and the use of test trenches to explore the foreshore and inshore anomalies.

6.77. I note from the applicant's response to the further information request that there are concerns in relation to the provision of a 100 metre exclusion zone at SS12, the applicant states that an exclusion zone of 60 metres is currently provided for at this location. It is further stated that water depths at this location are 50 metres which precludes investigation by diver inspection as this depth is at the limits for safe diving in ordinary circumstances. It is suggested by the applicant that a remote sensing survey could form part of the pre-construction survey work required to micro-site the cable route. The applicant also proposes to include the wider area around SS12 to facilitate a detailed assessment of archaeological risk of this location.

6.78. In relation to anomalies at M10, it is proposed within the further information response to carry out a remote sensing survey, as these anomalies are positioned 114 metres offshore in water depths of 20-25 metres and are fully submerged at low water. It is also proposed to include the south landing site 'S1' in this survey.

6.79. The applicant further states that full details of test trenches at both sites will be submitted with the licence application. Details of dive surveys are also to be submitted to the Underwater Archaeology Unit of the National Monuments Service for review in advance of any proposed works taking place. The report will also include a finds retrieval strategy and will form the basis of a licence application to the Department.

6.80. Having regard to the concerns raised by Kerry County Council and the DAU, and the response provided by the applicant, and taking into account the constraints of the development site in relation to depths and velocity of flows in the estuary, I am satisfied that the methodology proposed for the terrestrial pre-construction archaeological investigations of the cable route, is acceptable and will adequately provide for additional detail to be gathered in a safe an accurate manner.

6.81. It is important to note at this juncture that any test trenches within the foreshore will be permitted under licence and conditions pertaining to same are a matter for the Department - the Board does not have jurisdiction to adjudicate of such matters.

6.82. Following on from the foregoing issues, I note in preparation for the proposed development the applicant has engaged in archaeological testing and assessment of the development site. It is stated within Section 11.2.1 of the Environmental and Planning Report submitted that the wider area of the development site which includes an existing 220kV underground cable within the estuary was subject to investigation. Historical investigations in relation to the existing 220kV line have been utilised to inform the route of the proposed development.

6.83. Up to date investigations include the completion of walkover surveys of the intertidal and upper foreshore and a comprehensive archaeological interpretation of marine geophysical survey data which has been carried out over the wider study area of the development site. A multibeam bathymetry, side scan sonar, magnetometry and sub bottom profile data analysis has been carried out. It is stated that archaeological testing carried out to assist in the identification of the preferred route was carried out under a foreshore licence agreement and consisted of vibrocoring/cone penetration tests in December 2019. Following on from these tests the preferred route was selected which was considered optimal from a cultural heritage point of view. No further archaeological testing within the estuary was deemed necessary and a survey of the foreshore was carried out on the 11th December 2019.

6.84. All of the foregoing work including information collated from a desk top study of available historical mapping and data enabled the applicant to establish the baseline environment in relation to the proposed development site. Based on existing data the two shorelines were identified as retaining historic structures such as simple quays, and former fish traps, no known archaeological or historic features are present within

the corridor of the cable route. Surveys carried out of the landing points included foreshore surveys during low tide and above the high-water mark. Metal detectors and drones were utilised to gather information for the survey.

6.85. Eight features of archaeological/historical interest were encountered during the surveys. The majority related to the nineteenth century exploitation the estuary while a section of submerged woodland and peat saltmarsh located within the intertidal area to the east of Moneypoint Power Station is likely to date back to prehistory. A souterrain located to the west of Kilpaddoge on the southern shoreline would date to the early medieval period.

6.86. It is stated by the applicant that the surveys did not encounter any of the wooden posts encountered at the time of investigations in relation to the 220kV line installation.

6.87. The landfall sites were revisited in 2019, and information gathered at that time coupled with previous site surveys, indicated no additional features or deposits of archaeological or historical interest were encountered within the footprint of the proposed landfall works corridor. It is stated by the applicant within Section 11.3.2 of Environmental and Planning report submitted that the location of these two landfall sites avoids any known or recently discovered archaeological features recorded in the foreshore area.

6.88. The applicant acknowledges within the information submitted, that the proposed works have the potential to disturb previously submerged and buried archaeological matter. In order to prevent damage to such material it is proposed to engage in archaeological monitoring throughout the construction phase of the works. Furthermore, as noted above the applicant has also agreed to excavate pre-construction test trenches within the development site including areas where anomalies have arisen in previous surveys. In addition, as aforementioned above, the applicant will also undertake additional remote sensing surveys of suspect locations along the route in order to determine the significance of the anomalies noted.

6.89. Having regard to the level of archaeological investigations carried out in the development site and surrounding area, over a prolonged period, and given that additional pre-construction test trenches are proposed and further pre-construction surveys will be carried out under licence I consider that the applicant has adequately demonstrated that all known archaeological features of interest are to be adequately

avoided by the proposed development and a suitable monitoring programme will be put in place during construction to ensure that any archaeological material encountered during construction is appropriately dealt with.

6.90. Having regard to the information submitted and the response to the further information request, I consider that any issues pertaining to archaeology in the terrestrial element of the development site can be adequately dealt with by way of condition should the Board be minded to grant permission.

Noise and Air

6.91. Section 12 of the Environmental and Planning report examines the potential for the development to give rise to noise and air emissions. The nearest noise sensitive receptor to the Moneypoint Power station is stated to be located c. 520 metres from the northern landfall and c. 60 metres from the Moneypoint GIS station. The closest receptors at the southern side of the site in Co. Kerry is located c. 700 metres from the southern landfall at Glencloosagh Bay. Given the separation distance from the southern landfall and the noise receptor, no impacts are considered to arise in relation to construction noise generation, nonetheless a baseline noise survey was carried out in 2019 in the area surrounding Kilpaddoge, and the proposed operational noise of the equipment to be installed was modelled and compared against the baseline data.

6.92. The examination of noise emissions generated by the operation of the development found that noise levels at the sensitive receptors were predicted to be in the range of 24-30 dB which is less than current background noise levels. Impacts arising from operational noise are therefore not likely.

6.93. Noise generation from construction activities were also considered by the applicant and given the separation distance between the proposed development works and the noise sensitive receptors to the southern extremities of the site it is considered that such impacts are unlikely, nonetheless the applicant proposes to implement a noise monitoring and management plan in order to ensure that such impacts do not arise.

6.94. In relation to the Moneypoint Power Station which is located within the northern extremities of the site I have considered the existing activities on this site in the context of the construction and operation of the proposed development. I note that the proposed GIS works are located c. 60 metres from the nearest noise sensitive receptor, however given the current level of industrial related activity on site I do not

consider that the proposed activities will exacerbate noise emissions from that currently experienced. The construction element of the development is limited in terms of duration and I consider should the Board be of a mind to grant permission that noise emissions arising from this phase of the development can be adequately controlled by condition.

6.95. In relation to dust, impacts are also considered to be unlikely and are only related to the construction phase of the development. Impacts arising in relation to the adjacent SAC are considered within the Appropriate Assessment section of this report and will not be repeated hereunder. The developer proposes to monitor dust generation during construction and will implement a dust management plan in order to ensure that impacts do not arise in this regard. I consider the dust mitigation measures as outlined in section 12.5 of the Environmental and Planning report which include the use of dust barriers, wetting of surfaces, covering of seed and stockpiles, imposition of maximum speed limits within the site and the use of wheel washing and road sweeping are standard in practice and are known to be effective, I therefore consider that the applicant has adequately demonstrated that dust emissions will be adequately controlled during the construction of the development.

6.96. Should the Board be of mind to grant permission I consider it prudent to impose a condition requiring the implementation of all mitigation measures proposed in this regard.

6.97. I further note that air emissions arising from traffic associated with the proposed development are below levels whereby significant impacts could arise and as such I consider the proposed works to be acceptable in this regard.

Visual Impact

6.98. Section 13 of the Environmental and Planning report examines the impact of the proposed development in relation to the surrounding landscape. The proposed development at Money Point will be located within the industrial facility and the underground cable will cross a limited area of agricultural lands prior to connecting into the GIS station within Money Point. The Landscape Character Assessment contained within the Clare County Development Plan 2017-2023 identifies the site as ‘farmed rolling hills’ within the Shannon Estuary Farmland. Such lands are stated to comprise of varied, complex landscape with rolling landform that is very uneven.

These landscapes are further divided into landscape types in which the proposed Money point development site is identified as a working landscape and is considered to be of low landscape sensitivity.

6.99. It is the policy of the Clare County Development Plan to permit appropriate development within these areas which avoids visual prominence. Given the location of the proposed development within a significantly developed industrial site I do not consider that the proposal will give rise to significant visual impacts. The proposed GIS works will be located within the existing substation compound and from a visual prominence perspective will blend with existing development within the site and will not add a significant intensity to the visual impact of the existing significant electrical infrastructure present within this location of the development site.

6.100. The remainder of the cable will be located underground and will be undetectable within the wider landscape.

6.101. With regard to the proposed development at Kilpaddoge, I note that the Kerry County Development Plan does not contain a landscape character assessment. The lands are zoned for industry and, similar to the northern extremities of the site, the development will be contained within an existing developed site and will therefore not result in any significant alterations or perceptions of the existing landscape in this area.

6.102. Overall given the nature of the development and having regard to the scale of the existing infrastructure present at both shores of the Shannon I am satisfied that visual impacts will not arise as a result of the proposed works.

Marine Traffic

6.103. The applicant within the information submitted has also examined marine traffic utilising the estuary, it is stated within section 14.2.2.1 that c. 1800 vessels movements occur in the estuary per annum. It is further stated by the applicant that there is no identified channel within the estuary and from the applicant's investigations it appears that vessels mainly utilise the centre to northern section of the estuary for access. In the event of an unmarked channel, large vessels are, under normal circumstances, piloted into port or to a harbour by smaller boats which lead the way.

6.104. This is of significance to the overall operation of the estuary as the main artery to Foynes Port. I note from the information submitted, that the Shannon estuary is a

deep-water estuary with depths of over 70 metres in parts. Deepest sections are located within the centre and northern sections of the waterway. The estuary is both wide and deep at the development site. These characteristics coupled with an unmarked channel allow for a degree of flexibility to pilot boats guiding large vessels through the estuary. Such boats will be able to avoid vessels associated with the cable laying and as such continue a flow of marine traffic within the estuary.

6.105. Having regard to the underlying topography of the seabed and taking into account the size of the vessels utilising the estuary which have significant draughts (under water depth of the vessel) I am satisfied that the proposed works will not significantly hamper the accessibility of the estuary and as such will not significantly impact the current functioning of the Foynes Port. I draw the Board's attention to the existing submarine transmission cable adjacent to the development site which was laid without impeding Port access in 2006. During the operational phase no residual impacts are expected to arise.

Other Matters

6.106. I have examined the information submitted in relation to traffic and material assets and note that the applicant states that proposed works will be carried out over a period of 12 months. Construction traffic volumes are expected to reach 30 vehicles a day for this period and will access the site to the north from N67 and from the L1010 to the south from Tarbert. Given the nature and duration of the proposed works I am satisfied that significant impacts will not arise in relation to traffic.

6.107. A construction waste management plan will be prepared. It is proposed to segregate wastes to facilitate the optimum levels of recycling, reuse and recovery operations. Wastes sent off for recovery will only be conveyed by an appropriately authorised contractor. Having regard to the nature of the development and the information submitted in relation to waste management I consider that that applicant has adequately demonstrated that residual waste impacts are unlikely to arise in this instance.

7.0 Appropriate Assessment

7.1. The NIS dated July 2020 has been prepared by Aquafact International Services Ltd on behalf of Eirgrid. The NIS prepared by Aquafact International Services Ltd

describes the proposed development, its receiving environment and relevant European Sites in the zone of influence of the development. It was informed by a desk top study, maps and ecological and water quality data from a range of sources.

7.2. The report concluded that, taking into account the project design and the implementation of mitigation measures identified in the NIS, the proposed development will not result in adverse effects on the integrity of any Natura 2000 site.

7.3. Having reviewed the NIS, the supporting documentation and the further information submitted, I am generally satisfied that it provides adequate information in respect of the baseline conditions, identifies the potential impacts, uses best scientific information and knowledge and provides details of mitigation measures. I am satisfied, that the information provided is generally sufficient to allow for appropriate assessment of the development.

Stage 1 Screening

7.4. Notwithstanding the submission of a NIS, it is prudent to review the screening process to ensure alignment with the sites brought forward for AA and to ensure that all sites that may be affected by the development have been considered.

7.5. Having regard to the information and submissions available, nature, size and location of the proposed development and its likely direct, indirect and cumulative effects, the source pathway receptor principle and sensitivities of the ecological receptors, I consider the following European Sites are relevant to include for the purposes of initial screening for the requirement for Stage 2 appropriate assessment on the basis of likely significant effects**.** I note that the NIS submitted by the applicant did not consider all of the following sites within the screening stage of the report.

7.6. **Table 1.0**

European Site Name & Code	Distance	Qualifying Interest	Source-pathway-receptor	Considered further in screening
Lower River Shannon SAC	Development is within the SAC	Sandbanks which are slightly covered by sea water all the time [1110] Estuaries [1130]	Works within the site.	Yes, development is within the SAC, potential for

		Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099] Salmo salar (Salmon) [1106]		impacts to habitats and species arising from sediment deposition, deterioration of water quality and disturbance during construction works.

		Tursiops truncatus (Common Bottlenose Dolphin) [1349] Lutra lutra (Otter) [1355]		
River Shannon and River Fergus Estuary SPA	Development within the SPA	Cormorant (Phalacrocorax carbo) [A017] Whooper Swan (Cygnus cygnus) [A038] Light-bellied Brent Goose (Branta bernicla hrota) [A046] Shelduck (Tadorna tadorna) [A048] Wigeon (Anas penelope) [A050] Teal (Anas crecca) [A052] Pintail (Anas acuta) [A054] Shoveler (Anas clypeata) [A056] Scaup (Aythya marila) [A062] Ringed Plover (Charadrius hiaticula) [A137] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Lapwing (Vanellus vanellus) [A142] Knot (Calidris canutus) [A143] Dunlin (Calidris alpina) [A149] Black-tailed Godwit (Limosa limosa) [A156] Bar-tailed Godwit (Limosa lapponica) [A157] Curlew (Numenius arquata) [A160] Redshank (Tringa totanus) [A162]	Works within the site.	Yes, development is within the SPA, potential for impacts to bird species arising from disturbance during construction works.

		Greenshank (Tringa nebularia) [A164] Black-headed Gull (Chroicocephalus ridibundus) [A179] Wetland and Waterbirds [A999]		
Kerry Head SPA	c.25km south of the proposed works	Fulmar (Fulmarus glacialis) [A009] Chough (Pyrrhocorax pyrrhocorax) [A346]	Site is downstream of the site	No, given the distance from the proposed works, the nature of the works and the dispersion and dilution of the estuary it is unlikely for impacts to arise.
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	c.10km	Hen Harrier (Circus cyaneus) [A082]	Site is located 10km south of the proposed works, there is no direct pathway to the SPA.	No, given the nature and location of the works and that the surrounding lands drain to the River Shannon there is no pathway from the proposed site to the SPA. There is no Hen Harrier habitat within the development site that would given rise to ex-situ effects.

Tullaher Lough and Bog SAC	c.10km	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Transition mires and quaking bogs [7140] Depressions on peat substrates of the Rhynchosporion [7150]	The site is not connected to the SAC	No, there is no pathway to the SAC.
Loop Head SPA	c. 33km	Kittiwake (Rissa tridactyla) [A188] Guillemot (Uria aalge) [A199]	The River Shannon flows into the Atlantic Ocean.	No, given the nature and location of the proposed works significantly removed from the SPA and the dilution and dispersion action of the sea there is no potential for impacts to this SPA.
Kerry Head Shoal SAC	c.40km	Reefs [1170]	The River Shannon flows into the Atlantic Ocean.	No, given the nature of the proposed works and the dilution and dispersion action of the sea there is no potential for impacts to the SPA.

Screening Determination

7.7. The Screening Report submitted screens out all Natura 2000 sites on the grounds that they are removed from the development and will not be affected by disturbance with the exception of the following:

- Lower River Shannon SAC
- River Shannon and River Fergus SPA

7.8. I have considered additional European sites as listed above, as well as those considered within the applicants NIS, and consider that the applicant's approach is reasonable. Based on my examination of the NIS report and supporting information submitted, the scale of the development, its likely effects by way of the potential to contaminate the Lower River Shannon SAC and River Shannon and River Fergus SPA by way of water pollution and sedimentation from the laying of the cable and noise disturbance during construction, I would conclude that a Stage 2 Appropriate Assessment is required for these Natura 2000 sites. It is important to note that mitigation measures have not been considered in the Appropriate Assessment Screening.

Stage II Appropriate Assessment

7.9. The following Appropriate Assessment of the implications of the proposed works alone and in combination with other relevant plans and projects will be carried out in relation to the following European sites in view of their conservation objectives:

- Lower River Shannon SAC
- River Shannon and River Fergus SPA

7.10. The NIS submitted on behalf of Eirgrid concluded that the proposal will not, beyond reasonable scientific doubt, adversely affect the integrity of any Natura 2000 designated site either directly or indirectly.

7.11. The following is a summary of the objective scientific assessment of the implications of the project on the qualifying interest features of the European sites using the best scientific knowledge in the field. All aspects of the project which could result in adverse affects are assessed and mitigation measures designed to avoid or reduce any adverse effects are considered and assessed.

Potential for direct and indirect effects

7.12. It is important to note at this juncture that both the Shannon and Fergus rivers form the largest estuarine complex in Ireland and feature vast expanses of intertidal mudflats often fringed with saltmarsh vegetation. These sites also support the largest numbers of wintering waterfowl in Ireland which includes a significant number of birds listed on Annex I of the EU Birds Directive. There is also a resident population of bottle nose dolphins in the Shannon Estuary which is the only known resident population of this EU Habitats Directive Annex II species in Ireland.

7.13. Five species of fish listed on Annex II of the E.U. Habitats Directive are found within the site. These are Sea Lamprey (Petromyzon marinus), Brook Lamprey (Lampetra planeri), River Lamprey (Lampetra fluviatilis), Twaite Shad (Allosa fallax fallax) and Salmon (Salmo salar). The three lampreys and Salmon have all been observed spawning in the lower Shannon or its tributaries. The Fergus is important in its lower reaches for spring salmon, while the Mulkear catchment excels as a grilse fishery.

7.14. Overall, these sites are of great ecological interest as they contain a high number of habitats and species listed on Annexes I and II of the E.U. Habitats Directive, including the priority habitats lagoon and alluvial woodland, as aforementioned, the only known resident population of Bottle-nosed Dolphin in Ireland and all three Irish lamprey species and a number of species listed on Annex I of the E.U. Birds Directive either wintering or breeding.

7.15. The general conservation objectives for the qualifying interests of these sites seek to maintain or restore the favourable conservation condition for habitats and/or species at these sites. The maintenance of habitats and species within the Natura 2000 sites at favourable condition will contribute to the overall maintenance of favourable conservation status of those species at a national level.

7.16. Existing pressures, threats or activities that impose moderate negative impacts on the site include, shipping lanes, marine and freshwater aquaculture and nautical sports.

7.17. The NIS submitted acknowledges that the proposed works will give rise to a potential for both direct and indirect significant impacts arising from:

- Deterioration of water quality arising from sediment release, chemical pollutants or other waste material associated with activities with on-shore pre-construction and civil works,
- Noise disturbance arising from trench excavation and cable laying,
- Physical disturbance due to seabed clearance work, submarine trench excavation and cable laying activities,
- Suspension of sediments arising from cable laying activities,
- Impacts to species arising from Electro Magnetic Field emissions.

7.18. It is important to consider the location of all qualifying interests of both the Lower River Shannon SAC and the River Shannon and River Fergus SPA in order to identify the qualifying interests at risk of significant impact.

Qualifying interests at risk within the Lower River Shannon SAC

7.19. Having regard to the NIS submitted, the nature and scale of the proposed work and the location of the qualifying interests of the Lower River Shannon SAC relative to the proposed works, I consider that the following are the specific qualifying interests that are at risk of potential impact. Qualifying Interests not specified below are discounted based on their location significantly removed and/or being located upstream of the proposed works. Impacts have the potential to arise from physical disturbance, deterioration of water quality and/or increased levels of sedimentation, noise disturbance and impacts arising from electromagnetic field emissions from the submarine cable.

- Estuaries
- Reefs
- Mudflats and sandflat
- Fucoid-dominated intertidal reef community complex
- Subtidal sand to mixed sediment with Nephtys spp. community complex
- Subtidal sand to mixed sediment with Nucula nucleus community complex
- Bottlenose Dolphin
- Otter

- Atlantic Salmon
- Sea Lamprey
- River Lamprey

Qualifying Interests at risk within the Lower River Shannon & River Fergus SPA

7.20. It is of note that the majority of the special conservation interest bird species of the River Shannon and River Fergus SPA are found within the estuarine habitats in winter and are therefore significantly removed from the site of the proposed works. As outlined within the further information response, an extensive water-bird survey of the River Shannon and River Fergus Estuaries was carried out in 2017/18 by McCarthy Keville O'Sullivan. This survey data was considered to determine the level of importance for bird numbers and usage of the proposed cable route and landfall sites at Moneypoint on the Clare coast and Kilpaddoge on the Kerry coast.

7.21. It is stated within the information provided, as outlined above, that the majority of the shoreline at the Moneypoint landfall is not exposed at low tide and the area is therefore of reduced significance for waterfowl in terms of a feeding resource or a roosting site, relative to extensive areas of exposed intertidal habitat elsewhere in the Shannon Estuary.

7.22. On the 4th November 2020, EirGrid ecologist noted a single feeding curlew and a single Red Throated Diver in the near shore within 1km of the Killimer landfall site, thus demonstrating the limited use of the area by birds. The data presented in the MKO (2019) report shows clearly that the area where the proposed cables will cross is not an important site for total numbers of birds.

7.23. Having regard to the foregoing it is unlikely that the proposed works would impact the qualifying interests of the SPA due to the location of suitable habitat being upstream of the proposed works. Nonetheless given that works are to be carried out within the SPA I consider it prudent to examine the potential for impacts to arise in relation to deterioration in water quality as a result of construction works on site and/or habitat disturbance as a result of noise arising from construction works.

7.24. The effects of these impacts will be discussed in detail in the context of proposed mitigation measures within the integrity test below. It is important to note at this juncture that observations received from the Department of Culture, Heritage and the

Gaeltacht state that the department concurs with the applicant's assessment in that the proposed works are unlikely to pose a significant risk to marine nature conservation.

Mitigation Measures

7.25. Mitigation measures have been set out within section 3.6 of the NIS submitted and within the outline CEMP. Measures described within the outline CEMP include standard best practice in relation to construction. Induction training will be provided to workers in relation to the environmental plan and operations adjacent to water courses. An emergency response plan will be in place in relation to spillages on site, flood events, exclusion zone breaches and storage of materials. Concrete will be prevented from entering watercourse through the use of an identified compound area, batch loads of concrete are to be delivered on a need be basis, washing of delivery trucks will be permitted in designated areas, and quick setting concrete mixes will be used to reduce risk of contaminated run off.

7.26. A Fuel management plan will also be implemented and will ensure that chemicals are stored in secure containers in bunded areas, spill kits will be available, and all plant and machinery will be maintained to prevent fuel spillages or dripping. An invasive species management plan will be drawn up in the event that any such species are encountered within the development site. Protective fencing will be erected to prevent spoil from entering watercourses. Deliveries will be supervised, and tanks checked prior to refilling. Ongoing monitoring of surface water drains will occur.

7.27. Mitigation outlined within the NIS reflects the foregoing and also states that no works will occur within 10 metres of any drainage ditch, only topsoil which is to be reused within the site is to be retained and the remainder will be removed off site for disposal. Temporary construction and surface water drainage and sediment control measures will be in place prior to earthworks.

7.28. Any works relating to grid side connection circuits across drainage ditches will be completely isolated from the watercourse and will be over pumped to percolate to ground.

7.29. An Environmental Clerk of Works will be appointed by the contractor to oversee and monitor the implementation of biosecurity protocols.

7.30. All machinery will be cleaned in a manner so as to prevent the introduction of invasive species to the site or cause the spread of fish viruses, bacteria, fungi and moulds. Clean washed rock will be utilised as rock protection in order to minimise the risk of introducing fine materials.

7.31. To mitigate any potential impact to marine mammal species the appointed contractor will ensure all mitigation is in accordance with DAGH Guidance to Manage the risk to Marine Mammals from Man-made Sound Sources in Irish Water, 2014. Pre-works visual monitoring will be carried out in order to ensure that no mammals are present whilst works are being carried out. To further mitigate potential risk of adverse effects occurring, the subsea cable installation will occur outside of peak bottlenose dolphin calving season (august).

Potential in-combination effects.

7.32. The NIS refers to in combination effects in the context of the potential direct and indirect impacts as identified above, in combination with other plans and projects in the area.

7.33. It is stated within the NIS that to inform the assessment of potential in combination effects a review of consent applications for projects in the vicinity of the proposed development site were reviewed. The following projects and activities were identified within the NIS as potentially posing a risk of acting in combination with the proposed development:

- Commercial Shipping
- Dredging activity
- Energy Storage
- Geophysical survey

7.34. Each activity was examined in relation to the potential for in combination effects with table 2.13 of the Appropriate Assessment Screening and NIS document submitted. It is of note that the Moneypoint Synchronous Condenser has the potential, if completed simultaneously with the proposed development, to result in in-combination effects in relation to noise impacts on mammals. Mitigation measures are proposed as detailed below to prevent such effects from arising.

7.35. It was concluded within the NIS submitted that there would be no cumulative / in-combination effects arising from the proposed development.

7.36. Overall having regard to the information submitted in particular within Table 2.13 as aforementioned, I consider that in-combination effects have been properly assessed and I consider that significant in-combination effects are not likely to arise.

The integrity Test

7.37. I have considered the NIS along with the information submitted with the application and have had regard to the mitigation measures outlined. Potential for impacts to arise in relation to the leakage of oils and diesels or other such contaminates from construction vehicles has been dealt with within the mitigation measures outlined in Section 3.6 of the NIS submitted. All machinery will be checked prior to entering the works area and all fuel, lubricants and hydraulic fluids will be kept in a secure bunded area. Impacts arising from siltation in relation to terrestrial and foreshore works will be prevented through the use of protective fencing. Dewatering of watercourses during crossing works will prevent the movement and transportation of sediment within these streams.

7.38. These mitigation measures are standard in nature and are known to be effective. I am therefore satisfied that the mitigation measures outlined in relation to hydrocarbon contamination of waters and siltation in relation to trench excavation and dewatering works are acceptable.

Soft Sediment Communities (Mudflats and sandflat, and subtidal sand)

7.39. The clearance of seabed obstructions using PLG equipment has the potential to scrape the top-most substrate layers removing and dislodging fauna, the proposed works are of a limited footprint and will be temporary in nature, displaced trench sediments will move and resettle over the trench with the tidal action of the estuary. It is of note that sediment deposition depths associated with the development are up to 2mm towards the south of the cable route, less than 1mm towards the shoreline and up to 20mm inside the small bay to the south east of the cable route. It is stated within Section 3.4.1.5 of the NIS submitted that marine life can survive rapid sediment depositions up to depths of 100mm which is five times the worst-case scenarios modelled for the proposed works. Negative impacts are anticipated with deposition depths exceed 150mm, as such, having regard to the foregoing I am satisfied that the

proposed development individually, or in combination with other plans or projects would not be likely to have any adverse affects on soft sediment communities within the Lower Shannon SAC.

Reef Communities

7.40. The proposed cable route will traverse a limited area of reef habitat (c. 200mm per cable of which there are four) which comprises Faunal turf-dominated subtidal reef community. This reef community is stated to occupy an area of c. 21,421ha and is stable subject to natural processes. Conservation objectives for this habitat seek to maintain the favourable condition of the habitat.

7.41. The site synopsis states that reef communities at this location are sensitive to changes in water quality but are tolerant to sand scour and tidal streams. It is stated within the NIS that the proposed installation technique which will comprise of clearance of seabed obstructions using PLG equipment has the potential to dislodge reef fauna The applicant refers to a study undertaken at Lyme Bay within the UK which demonstrated the recovery of reef habitats following chronic towed demersal dredge and trawl fishing, it is stated that the results of this study were consistent with other such studies whereby reef recovery was observed over a limited number of years. The proposed development will be of short duration and will be a once off event considerably less intrusive to that of bottom fishing.

7.42. It is of note that the proposal will not involve the removal of reef habitat but will comprise the clearing of debris from the pathway of the cable which as mentioned has a width of c. 200mm which may result in the dislodgment of reef fauna. The applicant proposes to monitor these works in order to ensure the protection of the reef community within the development site. Having regard to the size and nature of the proposed works which will effectively scour a limited area of reef, I am satisfied that the reef will recover in a short space of time and that the proposed works will not result in any adverse effects on reef habitat in light of the site's conservation objective.

Bottlenose Dolphin

7.43. Bottlenose Dolphins use echolocation as their principal means of navigation, communication foraging and predator avoidance. If frequency of anthropogenic noise overlaps with the frequencies used by marine mammals, this may reduce the mammals ability to detect important sounds and exposure to high energy noise can

cause auditory injury. Individual dolphins are unlikely to remain in areas of high noise energy but mitigation as outlined above is nonetheless required in order to prevent displacement of this mammal. Visual inspections will ensure that works are not operating when dolphins are present in the area and adherence to measures outlined within the DAGH Guidance to Manage the risk to Marine Mammals from Man-made Sound Sources in Irish Water, 2014, along with the avoidance of calving season will ensure that adverse effects do not arise as a result of noise disturbance in relation to dolphin populations utilising the Lower Shannon SAC.

7.44. It is important to note that the proposed vessels utilised for the installation of the proposed cable will move slowly and will therefore not result in collisions with dolphins.

Diadromous Fish (Atlantic Salmon, Sea Lamprey, River Lamprey)

7.45. Diadromous Fish can be sensitive to low frequency noise emissions. Sound is perceived by fish through the ears and the lateral line, some fish like salmon have a structure linking gas filled swim bladders to the ear, these species have increased hearing sensitivity and are considered to be more sensitive to anthropogenic underwater noise sources than species such as lamprey that do not possess a structure linking the swim bladder to the inner ear, the structure of the lamprey ear is simple and it is stated that it is unlikely that they can detect sound close to 10kHz.

7.46. Impacts to adult and juvenile fish in open water are considered to be minimal as they can readily move away from the noise source. Mitigation measures are proposed in relation to the monitoring of submarine noise levels in order to ensure that emissions are kept within an acceptable range. I am therefore satisfied that impacts to salmon and lamprey in relation to noise will not arise.

7.47. As outlined within the assessment section of this report, concerns were raised in relation to the scientific basis for the assertions made by the applicant in relation to impacts arising from electro magnetic fields. This issue has been examined in section 6.5 above and I am satisfied that the proposed development will not give rise to such effects.

7.48. Having regard to the foregoing I am satisfied that the proposed development individually, or in combination with other plans or projects would not be likely to have a significant effect on Atlantic Salmon, Sea Lamprey or River Lamprey within the Lower Shannon SAC.

Otter

7.49. It is evident from the information available on the NPWS website in relation to the Lower River Shannon SAC that the shoreline along the Shannon Estuary to both the north and south of the estuary is suitable commuting habitat for otter. Otters were not encountered during walkover surveys and no holts were noted.

7.50. Given the presence of heavy industry activities at Moneypoint Power Station and significant electrical infrastructure at Kilpaddoge it is unlikely that the development site would be of significance to otter populations. However, it is nonetheless important to note that works proposed within the shoreline would not result in adverse affects to Otters, in addition Otters commuting via the site would be habituated to industrial noise levels, the proposed development will not exacerbate the existing situation on site and as such I am satisfied that the proposed development would not give rise to adverse affects in relation to Otters in view of the conservation objectives of the River Shannon SAC.

River Shannon and River Fergus SPA

7.51. It is stated in the NIS submitted that the development site will overlap with intertidal habitat and subtidal habitat. Potential adverse effects were considered to arise in relation to the deterioration of water quality and noise disturbance to diving bird species. As mentioned above mitigation measures outlined in relation to control of sediments and chemical pollutants during construction will ensure that deterioration of water quality does not arise.

7.52. In relation to noise disturbance, I note that bird surveys results demonstrate that the development is not significantly habituated by birds and only singular figures of species were observed during surveys. Low bird counts are attributed to the frequent use of the channel by marine vessels. The proposed development given its nature and limited duration will not give rise to significant noise emissions, mitigation measures which seek to monitor submarine noise emissions will ensure that diving birds are not adversely affected during the construction phase.

7.53. As such having regard to the foregoing, the nature and scale of the proposed development, the information submitted with the application, and the existing context of the site I am satisfied that the proposed development will not give rise to adverse

effects on the qualifying interests of the River Shannon and River Fergus SPA in view of the site conservation objectives.

Conclusion

7.53.1. I have considered the location of the qualifying interests of both the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA in relation to the proposed works and the existing context of the site within current industrial lands and the seabed of the Shannon Estuary and the activities and noise associated with such activities and I consider, on the basis of the information provided with the application, including the Natura Impact Statement, and in light of the assessment carried out, I am satisfied that the proposed development individually, or in combination with other plans or projects would not adversely affect the integrity of the European site Nos. 002165 and 004077 in view of these sites Conservation Objectives.

Table 1.1

Lower River Shannon SAC, site code: 002165 **Summary of likely significant effects** • **Water Quality deterioration** • **Noise disturbance** • **Habitat Disturbance** • **Disturbance arising from EMF** **Conservation Objectives: To maintain or restore the favourable conservation status of habitats and species of community interest**					
		Summary of Appropriate Assessment			
Qualifying Interest feature	**Conservation Objectives** **Targets and attributes**	**Potential adverse effects**	**Mitigation measures**	**Significant In-combination effects**	**Can adverse effects on integrity be excluded?**
Estuaries, Reefs, Fucoid-dominated intertidal reef	Area stable or increasing. The distribution of Reefs is stable	Increase in siltation and pollution due to construction works could have an impact on water quality. Noise arising	Use of silt traps and curtains, designated bunded areas for refuelling, stockpiling of excavated material in designated	None.	Yes

community complex, Subtidal sand to mixed sediment with Nephtys spp. community complex, Subtidal sand to mixed sediment with Nucula nucleus community complex, Bottlenose Dolphin, Otter, Atlantic Salmon, Sea Lamprey, River Lamprey.	Area stable or increasing, no decline. Species range within the site should not be restricted by artificial barriers to site use. No significant decline No decline in extent and distribution of spawning beds	from construction could disturb otter and dolphins, Disturbance during construction to reef and soft sediment habitat.	contained areas. Noise monitoring. Avoidance of submarine work during dolphin calving season. Monitoring of works during construction and operation.		
Overall conclusion: Integrity test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of this European site.					

Table 1.2

River Shannon and River Fergus Estuaries SPA, site code: 004077 **Summary of likely significant effects**

• **Water Quality deterioration** • **Noise disturbance** **Conservation Objectives: To maintain or restore the favourable conservation status of habitats and species of community interest**					
		Summary of Appropriate Assessment			
Qualifying Interest feature	**Conservation Objectives** **Targets and attributes**	**Potential adverse effects**	**Mitigation measures**	**Significant In-combination effects**	**Can adverse effects on integrity be excluded?**
Whooper - Swan Wigeon	Long term population trend stable or increasing.	Noise Disturbance arising from construction activity.	Noise monitoring.	None	Yes
Wetlands and waterbirds	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 32,261ha, other than that occurring from natural patterns of variation	Deterioration in water quality.	Use of silt traps and curtains, designated bunded areas for refuelling, stockpiling of excavated material in designated contained areas.	None	Yes
Overall conclusion: Integrity test Following the implementation of mitigation, the construction and operation of this proposed development will not adversely affect the integrity of this European site.					

8.0 Recommendation

8.1. I recommend that permission is granted subject to the following conditions.

9.0 Reasons and Considerations

In coming to its decision, the Board had regard to the following:

European legislation, including of particular relevance:

- Directive 92/43/EEC (Habitats Directive) and Directive 79/409/EEC as amended by 2009/147/EC (Birds Directives) which set the requirements for Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union.
- EU Renewable Energy Directive 2009/28/EC which aims to promote the use of renewable energy

National and regional planning and related policy, including:

- National Development Plan
- National Planning Framework
- Government Policy Statement on the Strategic Importance of Transmission and Other Energy Infrastructure, July 2012,

Regional and local level policy, including the:

- Regional Spatial Economic Strategy for the Southern Region

The local planning policy including:

- **Clare County Development Plan 2017-2023**
- **Kerry County Development Plan 2015-2021**
- **Strategic Integrated Framework Plan for the Shannon Estuary (2013-2020)**
- other relevant guidance documents
- the nature, scale and design of the proposed development as set out in the planning application and the pattern of development in the vicinity, including the existing Moneypoint Power Station,
- the likely consequences for the environment and the proper planning and sustainable development of the area in which it is proposed to carry out the proposed development and the likely significant effects of the proposed development on European Sites
- the submissions made to An Bord Pleanála in connection with the planning application, and

- the report and recommendation of the Inspector, including the examination, analysis and evaluation undertaken in relation to appropriate assessment and environmental impact assessment screening.

9.1. **Proper Planning and Sustainable Development**

9.2. It is considered that the proposed development would accord with European, national, regional and local planning and that it is acceptable in respect of its likely effects on the environment and its likely consequences for the proper planning and sustainable development of the area.

Appropriate Assessment:

The Board agreed with and adopted the screening assessment and conclusion carried out in the inspector's report that the Lower River Shannon SAC (002165), the River Shannon and River Fergus SPA (004077), are the European sites for which there is a likelihood of significant effects.

The Board considered the Natura Impact Statement and all other relevant submissions and carried out an appropriate assessment of the implications of the proposal for the Lower River Shannon SAC (002165), the River Shannon and River Fergus SPA (004077), in view of the Sites Conservation Objectives. The Board considered that the information before it was adequate to allow the carrying out of an appropriate assessment.

In completing the assessment, the Board considered, in particular, the

i. Likely direct and indirect impacts arising from the proposal both individually or in combination with other plans or projects, specifically upon the Lower River Shannon SAC (site code: 002165), the River Shannon and River Fergus SPA (site code: 004077)

ii. Mitigation measures which are included as part of the current proposal,

iii. Conservation Objective for these European Sites, and

iv. Views of the Department of Culture Heritage and the Gaeltacht.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the integrity of the aforementioned European Sites, having regard to the site's conservation objectives.

In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the site's conservation objectives.

10.0 **Conditions**

1. The proposed development shall be carried out and completed in accordance with the plans and particulars lodged with the application, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to commencement of development and the proposed development shall be carried out in accordance with the agreed particulars.

   Reason: In the interest of clarity.

2. (a) All mitigation, environmental commitments and monitoring measures identified in the Environmental and Planning Report shall be implemented in full as part of the proposed development.

   (b) All mitigation and environmental commitments identified in the Natura Impact Statement shall be implemented in full as part of the proposed development.

   Reason: In the interest of development control, public information, and clarity.

3. No submarine works shall be carried out during dolphin calving season.

   Reason: In the interest of species protection.

4. Noise monitoring shall be carried out at all times during the construction phase of the development.

   Reason: In the interest of environmental protection and public health.

5. Water supply and drainage arrangements, including the attenuation and disposal of surface water, shall comply with the requirements of the planning authority for

such works in respect of both the construction and operation phases of the proposed development.

Reason: In the interest of environmental protection and public health.

6. (a)No additional artificial lighting shall be installed or operated on site unless authorised by a prior grant of planning permission.

   (b) Cables within the site shall be located underground.

   Reason: In the interests of clarity, and of visual and residential amenity

7. Construction works will be undertaken in accordance with best practice and relevant guidance to prevent any deterioration of water quality and disturbance to bird species, as set out in the preliminary CEMP. These measures will be integrated in full into the final CEMP by the eventual contractor as a means of effective implementation of all measures. This plan shall provide details of intended construction practice for the development, including hours of working, noise management measures, surface water management proposals, the management of construction traffic and off-site disposal of construction waste.

   Reason: In the interests of public safety, protection of ecology and residential amenity.

8. The developer shall facilitate the preservation, recording and protection of archaeological materials or features that may exist within the site. In this regard, the developer shall – (a) notify the relevant planning authority in writing at least four weeks prior to the commencement of any site operation (including hydrological and geotechnical investigations) relating to the proposed development, (b) employ a suitably-qualified archaeologist who shall monitor all site investigations and other excavation works, and (c) provide arrangements, acceptable to the planning authority, for the recording and for the removal of any archaeological material which the authority considers appropriate to remove. In default of agreement on any of these requirements, the matter shall be referred to An Bord Pleanála for determination.

All archaeological pre-construction investigations shall be carried out in accordance with the details specified with the Environmental and Planning Report submitted with the application and in accordance with details specified within the further information response dated 3rd day of December 2020.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation and protection of any remains that may exist within the site.

9. Onshore site development and building works shall be carried out only between the hours of 0800 to 1900 Mondays to Fridays inclusive, between 0800 to 1400 hours on Saturdays and not at all on Sundays or public holidays. Deviation from these times will only be allowed in exceptional circumstances where prior written approval has been received from the planning authority.

   Reason: In order to safeguard the amenities of property in the vicinity.

10. Noise levels from the substation shall not exceed 55 dB(A) rated sound level (corrected sound level for any tonal or impulsive component) at dwellings between 0800 hours and 2200 hours on any day and shall not exceed 45dB(A) at any other time. Procedures for the purpose of determining compliance with this limit shall be submitted to and agreed with the planning authority prior to commencement of development.

    Reason: To protect the residential amenities of property in the vicinity.

11. The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the planning authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000, as amended. The contribution shall be paid prior to commencement of development or in such phased payments as the planning authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the application of the terms of the Scheme shall be agreed between the planning authority and the developer or, in default of such

agreement, the matter shall be referred to An Bord Pleanála to determine the proper application of the terms of the Scheme.

Reason: It is a requirement of the Planning and Development Act 2000, as amended, that a condition requiring a contribution in accordance with the Development Contribution Scheme made under section 48 of the Act be applied to the permission.

[redacted]
Senior Planning Inspector

11th January 2021