

[REDACTED]
Foreshore Unit,
Department of Housing, Local Government and Heritage,
Newtown Road,
Co. Wexford
8th March 2022

Environmental Report with Statutory Declarations

Re: FS007083 – Eirgrid to lay four submarine electricity cables across the Shannon Estuary between Co. Kerry and Co. Clare.

Applicant: EirGrid

I have reviewed the Foreshore Application FS007083 and the environmental documents associated with it. My comments on, and recommendations for, this application are as follows:

Independent Environmental Consultant (IEC): The Department engaged **Arup** as an IEC to provide assistance with regard to the statutory and non-statutory environmental assessments of this Foreshore Application. The IEC has conducted an independent assessment of the information provided by the Applicant, having regard to the Habitats Directive, EIA Directive, and the public and prescribed bodies' consultations.

Environmental Impact Assessment Regulations: The proposed project does not fall within the classes defined under Annex I or Annex II of the EIA Directive. However the Consent Authority (DHLGH) must complete an examination for EIA as part of their obligations under the EIA Directive. Please find attached the **EIA Screening Examination document** (Appendix 1).

Further information that was sought by the IEC to complete the screening for Appropriate Assessment was submitted by the applicant. This request and the applicant's response are included in the Appendix 2.

Risk Assessment of Annex IV Species of Directive (92/43/EEC) (as amended) (Habitats Directive): A review of the applicant's environmental reports by the IEC provided sufficient relevant information to carry out a Risk Assessment of Annex IV species.

Eirgrid and the cable laying operators will implement impact mitigation and monitoring measures in relation to marine mammals as outlined in *DAHG Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG 2014). They will also consult with the Irish Whale & Dolphin group.

Whilst the most recent otter survey showed a lack of evidence of otters at the sites, in the event that the construction phase of the development is delayed more than 12 months after the initial surveys, a post consent verification otter survey will be undertaken within the Zone of Influence of the proposed development site to establish if otters are present.

With implementation of the above mitigation measures, it is very unlikely that there will be negative residual impacts from the proposed works on Annex IV species in the area. It is also very unlikely that any animals will be injured or killed as a result of the proposed works. I

agree with and accept the IEC's Risk Assessment for Annex IV species including the mitigation measures outlined in section 4 of the Risk Assessment report.

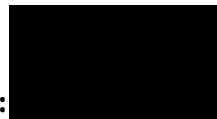
It should be noted that this risk assessment is not part of the Article 6.3 assessment and therefore identification and inclusion of mitigation measures at this stage within the risk assessment is appropriated.

Article 6(3) of Directive (92/43/EEC) (as amended) (Habitats Directive): Following a review of the proposed project, the IEC assessed and endorsed the applicant's **Screening for Appropriate Assessment** which concluded that a Stage 2 Appropriate Assessment was required as the project, individually or in combination with other plans or projects, is likely to have a significant effect on European sites.

Having considered the application by EirGrid and the IEC's Screening for Appropriate Assessment Report I agree with and accept the Screening for Appropriate Assessment and its conclusions. Please find attached my signed Recommending Officer's **Screening for Appropriate Assessment Determination**, this requires the signature of the Minister as part of the decision-makers obligations under the Habitats Directive (Appendix 3).

If the Minister adopts and approves these reports with the determination that a Stage 2 Appropriate Assessment is required a public consultation will be held on the Appropriate Assessment. On completion of this second consultation and the work of the IEC, I will furnish my final assessment report which will have regard to the information obtained during public participation and will include, if necessary, any case specific conditions.

Signature and Date of Marine Advisor:

A black rectangular box redacting the signature of the Marine Advisor.

8th March 2022

Appendix 1

EIA Screening Examination

EIA legislation sets down the types of projects that may require an EIA. Annex I of Directive 2011/92/EU, as amended by Directive 2014/52/EU, defines mandatory projects that require an EIAR and Annex II lists projects which can be subject to case by case analysis or thresholds to be determined by member states.

In the case of development which is under the relevant threshold, the consent authority is required to request an EIAR where it considers that the proposed development is likely to have significant environmental effects. The decision as to whether a development is likely to have such effects must be taken with reference to the criteria set out in Annex III (Schedule 7) inserted by (the Planning and Development Regulations 2001, as amended, (S.I. No. 600 of 2001)) the above Directive and the national guidance developed to assist.

Name of Proposed Development: Foreshore licence application to lay four submarine electricity cables across the Shannon Estuary, between Co. Kerry and Co. Clare.

Foreshore Reference, where applicable: FS007083

Question 1: Is the proposed development included in Annex I and II of the Directive (Schedule 5 to the P& D Regs)?

- If Yes: EIA is required.
- If No, proceed to Q2.

Answer: No

Question 2: Is the proposed development of a type/class included in Annex I and II of the Directive (Schedule 5 to the P&D Regs) but below the threshold specified?

- If Yes, but the development is below the quantity/area/other threshold, proceed to Q3.
- If No, no EIA or Screening for EIA is required.

Answer: No

Question 3: Are significant effects likely?

To decide whether significant effects are likely, use the Annex III of the Directive (Schedule 7 of the P&D Regs)

- If Yes, significant effects are likely; an EIA is required.
- If No, no significant effects are likely; no EIA is required.

Answer: N/A

Access to Information:

- The Consent Authority's process must be documented.
- A record of the decision and the decision-making process must be made public.

Appendix 2

Request for Further Information FS007083 EirGrid Cross Shannon Cable Project

**Independent Environmental Consultants
Request for Further Information (Number 1)
Submitted to EirGrid PLC 2nd of December 2021**

Request for Further Information FS007083 EirGrid Cross Shannon Electricity Cable

We have reviewed the information submitted with the application for Foreshore consent, file reference FS007083 EirGrid Cross Shannon Electricity Cable. To complete our work as independent environmental consultant on this project, we require the following information from the applicant:

1. 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.
2. The Conservation Objectives for the Lower River Shannon SAC, (NPWS, 2012¹) 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.

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.

3. Provide further information on the consideration of alternative methods to install the cables across the Estuary. In particular, state whether non-invasive techniques such as horizontal directional drilling were considered and, if so, state the reasons that such a technique was not chosen.

¹ National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht *Conservation objectives supporting document - marine habitats and species, Lower River Shannon SAC (site code: 2165). Version 1.* NPWS (2012)., 33pp.

4. Provide clarification of where the cable landing areas are, i.e., if they are within the existing ESB substation compounds.
5. Provide an estimation of the area of rock armour to be used to protect the cables on the bed of the Estuary.

**Applicants Response to
Request for Further Information
Submitted to Foreshore Unit 7th of January 2022**

[REDACTED]
Foreshore Section

Department of Housing, Local Government & Heritage

Newtown Road

Wexford

Y35 AP90

7th Jan 2022

RE: Request for Further Information FS007083 EirGrid Cross Shannon Electricity Cable

Dear [REDACTED]

The Foreshore Licence application (Ref: FS007083 EirGrid Cross Shannon Electricity Cable) was submitted to the Department of Housing, Local Government & Heritage on the 4th May 2021 by EirGrid Plc with the consent and approval of the Electricity Supply Board (ESB). This application was for a new 400 kV cable across the Shannon Estuary between the Moneypoint 400 kV Electricity Substation and Kilpaddoge 220/110 kV Electricity Substation.

The Department of Housing, Local Government & Heritage issued a Request for Further Information (RFI) on the 2nd December 2021, a copy of which is enclosed. Please find below the requested information.

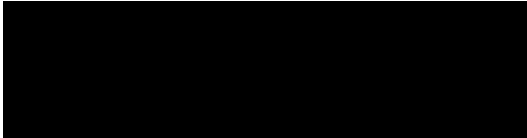
Please note that a corresponding Strategic Infrastructure Development application (Ref: VA03.307798), made to An Bord Pleanála on the 30th August 2020 was approved with conditions on the 4th June 2021. A copy of the Board Order is enclosed.

Responses to items 1 and 2 of the RFI, which relate to potential noise impact on dolphins from a cable laying vessel and conservation objectives for the Lower River Shannon SAC, respectively, were prepared on behalf of EirGrid by the environmental and hydrographic consultants AQUAFACT International Services Ltd. For completeness, a copy of the AQUAFACT report to EirGrid is enclosed. The responses to items 3, 4, and 5 of the RFI have been prepared by suitably experienced technical and environmental specialists in EirGrid.

[REDACTED]

I trust that the responses provided are sufficient for your independent environmental consultant to complete their review and we look forward to receiving your determination at your earliest convenience.

Yours sincerely,



EirGrid Project Manager
Cross Shannon 400 kV Cable Project

The RFI as received from the Department appears in italics and the requested information is detailed below the italicised text.

Item 1 of the RFI - Noise from a cable laying vessel and potential impact on dolphins

- 1. 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.*

As noted in the cover letter above, Item 1 and 2 of this response submission has been prepared by AQUAFACT, with the substance of the response contained in a report enclosed with this submission.

In addition to its work on EirGrid's Cross Shannon Cable project, AQUAFACT has also been part of a significant body of work on dolphins in the Shannon, on a range of projects in the estuary, and is therefore highly qualified to prepare this aspect of EirGrid's response submission.

Most recently, AQUAFACT has played a key role as underwater ecological consultant in relation to the Shannon LNG Ltd. proposed Shannon Technology Enterprise Park (STEP) project (the location of which is in proximity to the cable crossing). This proposed development is currently the subject of an application to An Bord Pleanála (ABP) for Statutory Consent – ABP Ref. PL08.311233.

The application particulars include a Natura Impact Statement prepared by AQUAFACT, which has significant reference to dolphins within the Shannon – this is publicly available at <https://www.pleanala.ie/publicaccess/EIAR-NIS/311233/Natura%20Impact%20Statement/STEP%20NIS.pdf?r=584294242086>. The content and conclusions of the NIS have been reviewed by EirGrid in preparing this response to the Further Information request in respect of the Cross Shannon Cable project. Specifically, EirGrid has had regard to Section 3.6.2 of the NIS regarding *Underwater Noise Mitigation* and the statement that “*To mitigate potential impact to marine mammal species Shannon LNG will implement relevant impact mitigation and monitoring measures in relation to marine mammals as outlined in DAHG Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014)*”.

It is noted that this application includes an EIAR which also addresses Underwater Noise Mitigation (Section 7A.7.2); such mitigation as set out in the NIS is also included in this section of the EIAR.

For the STEP project, an assessment was undertaken of the potential effect of noise associated with the project on bottlenose dolphins which are a Qualifying Interest of the Lower River Shannon SAC. The assessment of the effect of noise on bottlenose dolphins from the STEP project was also requested by the National Parks and Wildlife Service (NPWS) in a response to a letter of consultation sent by AQUAFAC to the NPWS.

For the STEP project, AQUAFAC 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, AQUAFAC reviewed a predictive mathematical noise model (Vysus 2021¹), 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. The model is further detailed in Section 0 below.

As part of the project AQUAFAC also reviewed an ecological impact assessment (LGL 2021¹), prepared by LGL Ecological Research Associates Ltd (LGL ERA), of these noise sources on the Shannon dolphins, porpoises, seals and a selection of fish. The LGL ERA ecological impact assessment concluded that temporary impacts would not have adverse effects on the integrity of the site.

For Cross Shannon Electricity Cable it can be concluded that, based on the findings of the LGL (2021) ecological impact assessment, in combination with the environmental and ecological information submitted with the subject Foreshore Licence application, the potential additional temporary disturbance of the presence of the cable laying vessel, in combination with other sources of noise disturbance in the Shannon estuary, will not result in any likely significant impact on the population of dolphins that are present in the Lower Shannon.

It should be noted that as the separate STEP project will require pile driving, that project will generate a higher level of noise than the Cross Shannon Cable project which will not require pile driving.

Adherence to the NPWS guidelines on the impacts of noise on marine mammals (as noted above) on both projects will ensure a minimum level of impact on such species. Also, as the Cross Shannon

¹ Vysus 2021 and LGL 2021 available for download at <https://www.pleanala.ie/en-ie/case/311233>

Cable Crossing includes a specific mitigation measure that construction will be carried out outside the calving period for dolphins, impacts on newly born dolphins will be avoided.

Section 1.1 – Vysus 2021 and LGL 2021

The Vysus noise modelling examined 5 different scenarios:

1. The Floating Storage Unit (FSRU) as the sole noise source,
2. The FSRU along with an offloading Liquid Natural Gas (LNG) carrier and 1 tug idling close to the LNG vessel,
3. Pile driving as part of the construction of the jetty,
4. FSRU with an approaching LNG vessel and 4 motoring tugs and
5. The FSRU with a berthing LNG vessel, 4 attending tugs, a general cargo vessel travelling in the middle of the estuary and a ship moored at Moneypoint with its engine idling.

The predicted noise was compared to sets of criteria relating to threshold shifts for dolphins as recommended by LGL ERA (120 dB and 160 dB). An evaluation of these criteria generated tables of distances from source to threshold levels.

To inform the noise model prepared by Vysus measurements were made of ambient noise levels on two dates in May (one during daylight hours and the other at night) from a passively floating vessel. It should be noted, that during the course of the daylight measurements, the Tarbert – Killimer ferry happened to pass close to the hydrophone and it was found that the predicted noise from the FSRU on its own (Scenario 1 above) or in combination with LNG carrier and 1 tug (Scenario 2 above) was less than that of the ferry except for ranges within 450 – 500m. Details of noise profiles of the vessels and piling activities used in the model are detailed in the Vysus (2021) report).

An analysis of broadband source levels showed that sailing vessels (LNG carrier, tugs and cargo vessels have the highest overall levels. The results of the analyses for the 5 scenarios described for the maximum distance to either a 120 dB or 160 dB threshold above were as follows:

- The FSRU as the sole noise source: less than 75m using the 120 dB threshold.
- The FSRU along with an offloading LNG carrier and 1 tug idling close to the LNG vessel: less than 75m using the 120 dB threshold.

- Pile driving as part of the construction of the jetty: 316m using the 160 dB threshold
- FSRU with an approaching LNG vessel and 4 motoring tugs: 712m using the 120 dB threshold
- The FSRU with a berthing LNG vessel, 4 attending tugs, a general cargo vessel travelling in the middle of the estuary and a ship moored at Moneypoint with its engine idling: 130m using the 120 dB threshold.

The LGL ERA report (LGL 2021) used the results of Vysus (2021) presented above, and from these it concluded that pile driving was the only source of noise that had the potential to cause permanent threshold shift (PTS) for dolphins. Sources of continuous (such as vessel noise) non-impulsive sounds had no potential for PTS. The report considers that PTS is highly unlikely as animals move away from loud noise sources and monitoring and mitigation measures would be implemented to avoid such impacts. It concludes 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, it can be concluded here 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.

The Conservation Objective for bottle nose dolphin in the Lower River Shannon SAC is to maintain the favourable conservation condition of the species which is defined by the following attributes: access to suitable habitat, habitat use; critical areas, disturbance. Noise generated by this project will not affect these attributes.

Item 2 of the RFI – Conservation Objectives etc.

2. *The Conservation Objectives for the Lower River Shannon SAC, (NPWS, 2012¹¹) 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.*

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.

In paragraph 1, last line, the RFI notes that in the screening for Appropriate Assessment, it was concluded 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*”.

Examination of the literature on the topic of re-colonisation of hard substrates in the marine environment shows that there is a rich and global corpus of publications on this topic (see Southward and Southward, 1978, Myers, Southgate and Wilson, 1980, Shin, 1981, Cross and Southgate, 1983, Southgate, Wilson, Cross and Myers, 1984, Konar, 2007, Beuchel and Gulliksen, 2008, Kerchof et al., 2010, Jewett and Drew, 2014 inter alia) and some of the papers published in the 32nd European Marine Biology symposium (see Baden et al. 1998) focussed on this topic.

All these publications show that newly exposed hard surfaces e.g. broken/cracked rock, newly built piers/sea walls, rocks put in place to protect pipes/cables or slates used to experimentally track re-colonisation rates, are quickly and successfully settled on by epifaunal taxa such as algae, Porifera, Cnidaria, Polychaeta, Cirripedia, Mollusca, Bryozoa and Tunicata.

Such re-colonisation of hard substrates has been recorded as far back in time as the Ordovician (see Steele-Petrovich and Bolton, 1998) and it is considered here entirely likely that such re-colonisation events date even further back to when life first began.

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”*, there are no ecological differences between these two community types that would allow one to re-establish but not the other.

On the basis of this wealth of evidence, it is submitted that the proposed development will have no adverse effects on such communities.

Of particular note, 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.

Item 3 of the RFI – Consideration of alternative methods to install cables across the Estuary

3. *Provide further information on the consideration of alternative methods to install the cables across the Estuary. In particular, state whether non-invasive techniques such as horizontal directional drilling were considered and, if so, state the reasons that such a technique was not chosen.*

During the development of this project, a number of technologies were subject to high-level consideration for the crossing of the estuary. These comprise laying the cables directly on the seabed, burying the cables as per the currently proposed development and Horizontal Directional Drilling (HDD).

The seabed alternative was deemed not preferred due to the risk of damage from anchors, fishing equipment and other hazards and thereby was not progressed further.

HDD is a method for pipe and electrical cable installation used when there is a need to traverse an obstacle and other, more standard, approaches are not feasible.

HDD solutions have intrinsic environmental risks associated with them and, while these environmental risks can be managed if the works are planned, designed and delivered with the required quality, they are usually considered as a last resort in this type of environment given the length of the HDD that would be required and the depths the HDD would reach.

An important element to minimise the risks and improve the quality is to keep the total length of the HDD section as short as is possible. Normally HDD for High Voltage Transmission cable are done for lengths of up to only a few hundred meters. In the case of the Cross Shannon Electricity Cable project the HDD would involve a length of 2.8 km plus the landing section. For this reason, it was not deemed a preferred alternative and thereby was not progressed further.

The chosen laying method, buried in the seabed, therefore comprises the preferred alternative and thereby the proposed development in this instance. EirGrid is satisfied that this proposal is in line with international best practice for subsea cable projects of this nature. In this regard, the department will be aware that EirGrid's separate Celtic Interconnector Project (ref. FS006916) is proposed as a buried subsea cable using a similar approach and methodology as proposed in this instance.

Item 4 of the RFI – Clarification of location of the cable landing areas

4. *Provide clarification of where the cable landing areas are, i.e., if they are within the existing ESB substation compounds.*

It should be noted that the cable landing areas on both the south shore and north shore are above the High Water Mark and therefore have the benefit of statutory consent from An Bord Pleanála (ABP Ref: VA03.307798). The cable landing area landholdings are as follows:

South Shore

The cable landing area on the southern shore, County Kerry, is in ESB ownership (Folio no. KY69424F). This cable landing area is within the overall ESB landholding of the existing Kilpaddoge 220 kV Substation. Please refer to drawing titled "*Survey Area, Foreshore Licence Application, Adjacent Landowner Folios, South Option*", drawing number 379408-MMD-XX-00-GIS-N-1005, which was submitted as part of Appendix C of the Foreshore Licence application, for detail. For convenience a copy of that drawing is enclosed. As confirmed in that drawing, the cable will connect with proposed above ground electrical infrastructure that will be developed within the landholding, and which has the benefit of Statutory Approval from An Bord Pleanála, per the separate though related onshore element of this overall development (ABP Ref: VA03.307798).

North shore

The cable landing area on the northern shore, County Clare, is in private ownership (Folio no. CE6741N). The landowner has provided consent to the making of the application. This cable landing area is to the east of the existing Moneypoint 400 kV landholding and Substation compound and an

onshore cable run of approximately 1.8 km in length will be required to connect into the existing connection point in the 400 kV substation. Again, this has been the subject of a separate Statutory Approval per ABP Ref. VA03.307798. Please refer to drawing titled "*Survey Area, Foreshore Licence Application, Adjacent Landowner Folios, North Option*", drawing number 379408-MMD-XX-00-GIS-N-1004, which was submitted as part of Appendix C of the Foreshore Licence application, for detail. For convenience a copy of that drawing is enclosed.

Item 5 of the RFI – Estimation of the rock armour area

5. *Provide an estimation of the area of rock armour to be used to protect the cables on the bed of the Estuary.*

Rock armour is required on either side of the estuary to enhance cable protection at the near shore locations to manage the risk of shoreline erosion from wave action. The provision of rock armour is addressed in the Planning and Environment Considerations Report (PECR) accompanying the application. Typical plan layout and sections of the proposed rock armour is shown on drawing numbers 229379408-MMD-01-XX-DR-E-1121 and 229379408-MMD-01-XX-DR-E-1120.

Based on assessments undertaken for the application preparation, it is expected, as a worst-case scenario, that the rock armour will extend for approximately 30m length along the cable from the low water mark, with a spread width of approximately 20m. The estimated worst-case area of rock armour is therefore 600 square metres at either shoreline. The final specific area of required rock armour will be confirmed in post-consent detailed design, and in liaison with the Department and/or other relevant authorities.

The approach and methodology for the laying of rock armour is long-established for cable laying of this nature and is also addressed in the PECR. Of particular note, the provision of rock armour is designed to minimise environmental impact while at the same time ensuring the protection of the cables from potential hazards such as anchors and fishing or aquaculture equipment.

References

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Steele-Petrovich, M. and Bolton, T. (1998). Morphology and paleoecology of a primitive mound forming polychaete from the Ordovician of the Ottawa Valley, Canada. *Paleoecology*, 41: 125 - 145

Enclosed

A copy of each of the following items is enclosed with this submission:

- Request for Further Information FS007083 EirGrid Cross Shannon Electricity Cable
- Original report provided to EirGrid by AQUAFAC International Services Ltd, titled "*Response to Request for Further Information with regard to FS007083 Cross Shannon Electricity Cable*", dated December 2021
- Drawing number 379408-MMD-XX-00-GIS-N-1005, "*Survey Area, Foreshore Licence Application, Adjacent Landowner Folios, South Option*"
- Drawing number 379408-MMD-XX-00-GIS-N-1004 "*Survey Area, Foreshore Licence Application, Adjacent Landowner Folios, North Option*"
- Drawing number 229379408-MMD-01-XX-DR-E-1121 "*Southern Landfall – Kilpaddocke, Plan Layout & Sections*"
- Drawing number 229379408-MMD-01-XX-DR-E-1120 "*Northern Landfall – Moneypoint, Plan Layout & Sections*"
- *An Bord Pleanála approval for onshore elements of the Cross Shannon Cable project*

Encl.

Request for Further Information FS007083 EirGrid Cross Shannon Electricity Cable

We have reviewed the information submitted with the application for Foreshore consent, file reference FS007083 EirGrid Cross Shannon Electricity Cable. To complete our work as independent environmental consultant on this project, we require the following information from the applicant:

1. 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.
2. The Conservation Objectives for the Lower River Shannon SAC, (NPWS, 2012¹) 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.

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.

3. Provide further information on the consideration of alternative methods to install the cables across the Estuary. In particular, state whether non-invasive techniques such as horizontal directional drilling were considered and, if so, state the reasons that such a technique was not chosen.

¹ National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht *Conservation objectives supporting document - marine habitats and species, Lower River Shannon SAC (site code: 2165). Version 1.* NPWS (2012)., 33pp.

4. Provide clarification of where the cable landing areas are, i.e., if they are within the existing ESB substation compounds.
5. Provide an estimation of the area of rock armour to be used to protect the cables on the bed of the Estuary.



**Response to Request for Further Information with regard to
FS007083 Cross Shannon Electricity Cable**

Produced by

AQUAFAC International Services Ltd

January 2022

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Report Approval Sheet

Client	Mott MacDonald
Report Title	Response to Request for Further Information FS007083 Cross Shannon Electricity Cable
Job Number	JN1408
Report Status	Final
Issue Date	3/01/2022

Rev	Status	Issue Date	Document File Name	Author (s)	Approved by:
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2	Draft	21/12/2021	Response to RFI FS007083		
3	Final	4/01/2022	Response to RFI FS007083		



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1. Introduction

Mott MacDonald requested AQUAFAC to prepare responses to 2 items on a Request for Further Information with regard to FS007083 Cross Shannon Electricity Cable. Specifically these items are:

1. *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.*
2. *The Conservation Objectives for the Lower River Shannon SAC, (NPWS, 2012¹) 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.*

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.

2. Item 1: Noise from a cable laying vessel and potential impact on dolphins

AQUAFAC has been part of a significant body of work on dolphins in the Shannon over the years on a range of projects in the estuary and most recently, in relation to the Shannon LNG Ltd. proposed Shannon Technology Enterprise Park (STEP) project (the location of which is near enough to the cable crossing). The STEP project comprises the construction and operation of 1) a Power Plant and Battery energy storage system (BESS) and 2) a LNG Terminal. The Power Plant which is located on land will comprise up to three (3) blocks of Combined Cycle Gas Turbines (CCGT). The proposed BESS is comprised of 27 battery containers, approximately 4.5 MWh each, containing lithium ion batteries. The proposed LNG Terminal will comprise of floating storage regasification unit (FSRU) and the construction of a piled jetty extending from the into the estuary area. The FRSU will have an LNG storage capacity of up to 180,000 cubic metres (m³). The LNG vaporisation process equipment to regasify the LNG to natural gas shall be on-board the FRSU. Loading of LNG onto the FRSU shall be via a ship to ship transfer from another LNG carrier berthed alongside. Tugboats will be operation at the site during FSRU and LNGC mooring operations.

For the STEP project, an assessment was undertaken of the potential effect of noise associated with the project on bottlenose dolphins which are a Qualifying Interest of the Lower River Shannon SAC. The assessment of the effect of noise on bottlenose dolphins from the STEP project was also requested by the National Parks and Wildlife Service (NPWS) in a response to a letter of consultation sent by AQUAFAC to the NPWS.

For the STEP project, AQUAFAC 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, AQUAFAC reviewed a predictive mathematical noise model (Vysus 2021¹), 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. The model is further detailed in **Section 2.1** below.

As part of the project AQUAFAC also reviewed an ecological impact assessment (LGL 2021¹), prepared by LGL Ecological Research Associates Ltd (LGL ERA), of these noise sources on the Shannon dolphins, porpoises, seals and a selection of fish. The LGL ERA ecological impact assessment concluded that temporary impacts would not have adverse effects on the integrity of the site. The ecological assessment is further detailed in **Section 2.1** below.

For Cross Shannon Electricity Cable it can be concluded here that based on the findings of the LGL (2021) ecological impact assessment, the potential additional temporary disturbance of the presence of the cable laying vessel in combination with other sources of noise disturbance in the Shannon estuary will not result significantly impact the population of dolphins that are present in the Lower Shannon.

It should be noted that as the STEP project will require pile driving, that project will generate a higher level of noise than the Cross Shannon Cable project as this project will not require pile driving. Adherence to the NPWS guidelines on the impacts of noise on marine mammals on both projects will

¹ Vysus 2021 and LGL 2021 available for download at <https://www.pleanala.ie/en-ie/case/311233>

ensure a minimum level of impact on such species. Also, as the Cross Shannon Cable Crossing construction will be carried out outside the calving period for dolphins, impacts on newly born dolphins will be avoided.

2.1. Vysus 2021 and LGL 2021

The Vysus noise modelling examined 5 different scenarios:

1. The Floating Storage Unit (FSRU) as the sole noise source,
2. The FSRU along with an offloading Liquid Natural Gas (LNG) carrier and 1 tug idling close to the LNG vessel,
3. Pile driving as part of the construction of the jetty,
4. FSRU with an approaching LNG vessel and 4 motoring tugs and
5. The FSRU with a berthing LNG vessel, 4 attending tugs, a general cargo vessel travelling in the middle of the estuary and a ship moored at Moneypoint with its engine idling.

The predicted noise was compared to sets of criteria relating to threshold shifts for dolphins as recommended by LGL ERA (120 dB and 160 dB). An evaluation of these criteria generated tables of distances from source to threshold levels.

To inform the noise model prepared by Vysus measurements were made of ambient noise levels on two dates in May (one during daylight hours and the other at night) from a passively floating vessel. It should be noted, that during the course of the daylight measurements, the Tarbert – Killimer ferry happened to pass close to the hydrophone and it was found that the predicted noise from the FSRU on its own (Scenario 1 above) or in combination with LNG carrier and 1 tug (Scenario 2 above) was less than that of the ferry except for ranges within 450 – 500m. Details of noise profiles of the vessels and piling activities used in the model are detailed in the Vysus (2021) report).

An analysis of broadband source levels showed that sailing vessels (LNG carrier, tugs and cargo vessels) have the highest overall levels.

The results of the analyses for the 5 scenarios described for the maximum distance to either a 120 dB or 160 dB threshold above were as follows:

- The FSRU as the sole noise source: less than 75m using the 120 dB threshold.
- The FSRU along with an offloading LNG carrier and 1 tug idling close to the LNG vessel: less than 75m using the 120 dB threshold.
- Pile driving as part of the construction of the jetty: 316m using the 160dB threshold
- FSRU with an approaching LNG vessel and 4 motoring tugs: 712m using the 120dB threshold
- The FSRU with a berthing LNG vessel, 4 attending tugs, a general cargo vessel travelling in the middle of the estuary and a ship moored at Moneypoint with its engine idling: 130m using the 120 dB threshold.

The LGL ERA report (LGL 2021) used the results of Vysus (2021) presented above, and from these it concluded that pile driving was the only source of noise that had the potential to cause permanent threshold shift (PTS) for dolphins. Sources of continuous (such as vessel noise) non-impulsive sounds had no potential for PTS. The report considers that PTS is highly unlikely as animals move away from loud noise sources and monitoring and mitigation measures would be implemented to avoid such impacts. It concludes 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, it can be concluded here 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.

The Conservation Objective for bottle nose dolphin in the Lower River Shannon SAC is to maintain the favourable conservation condition of the species which is defined by the following attributes: access to suitable habitat, habitat use; critical areas, disturbance. Noise generated by this project will not affect these attributes.

3. Item 2. Conservation Objectives etc.

In paragraph 1, last line, the RFI notes that in the screening for Appropriate Assessment, it was concluded 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”*.

Examination of the literature on the topic of re-colonisation of hard substrates in the marine environment shows that there is a rich and global corpus of publications on this topic (see Southward and Southward, 1978, Myers, Southgate and Wilson, 1980, Shin, 1981, Cross and Southgate, 1983, Southgate, Wilson, Cross and Myers, 1984, Konar, 2007, Beuchel and Gulliksen, 2008, Kerchof *et al.*, 2010, Jewett and Drew, 2014 *inter alia*) and some of the papers published in the 32nd European Marine Biology symposium (see Baden *at al.* 1998) focussed on this topic.

All these publications show that newly exposed hard surfaces *e.g.* broken/cracked rock, newly built piers/sea walls, rocks put in place to protect pipes/cables or slates used to experimentally track re-colonisation rates, are quickly and successfully settled on by epifaunal taxa such as algae, Porifera, Cnidaria, Polychaeta, Cirripedia, Mollusca, Bryozoa and Tunicata.

Such re-colonisation of hard substrates has been recorded as far back in time as the Ordovician (see Steele-Petrovich and Bolton, 1998) and it is considered here entirely likely that such re-colonisation events date even further back to when life first began.

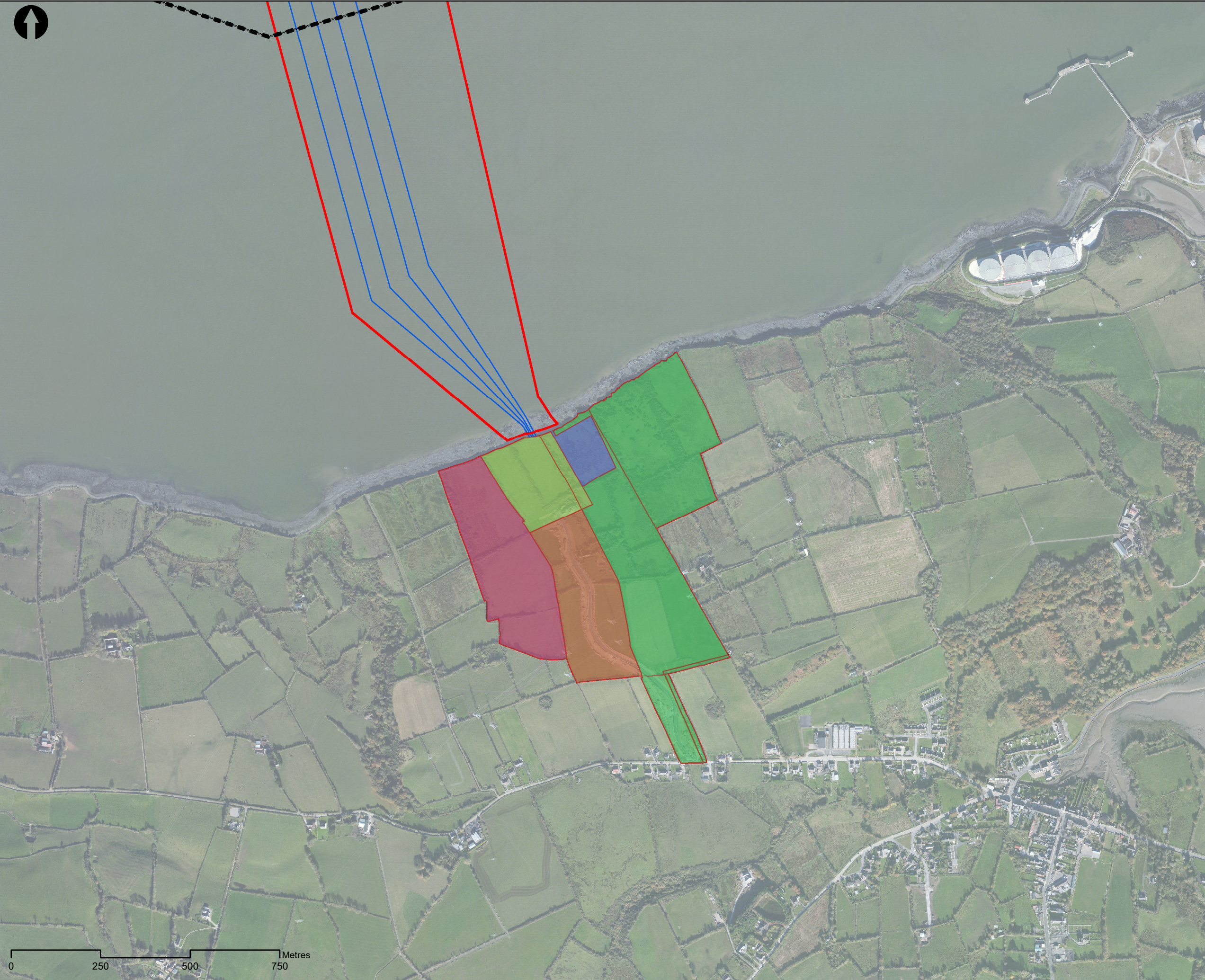
The species that occur on boulders and cobbles that are present nearby the area being excavated and that are not affected by the excavation process will quickly colonise the freshly exposed surfaces and rocks put in place.

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”*, there are no ecological differences between these two community types that would allow one to re-establish but not the other.

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.

4. References

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Location Map

Key to Symbols

Project Area

County Boundary

Cable Routes

South

PRAI Folios

KY69424F - ELECTRICITY SUPPLY BOARD

KY4079N - PRIVATE OWNERSHIP

KY4133N - PRIVATE OWNERSHIP

KY67175F - PRIVATE OWNERSHIP

KY73584F - PRIVATE OWNERSHIP

Notes

Folio geometry was supplied by the Property Registration Authority of Ireland (PRAI) who operate a non-conclusive boundary system.

1	05/02/2020		Issue for review		
Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client

Title

Survey Area
Foreshore Licence Application

Adjacent Landowner Folios
South Option

Designed		Eng Check	
Drawn		Coordination	
GIS Check		Approved	

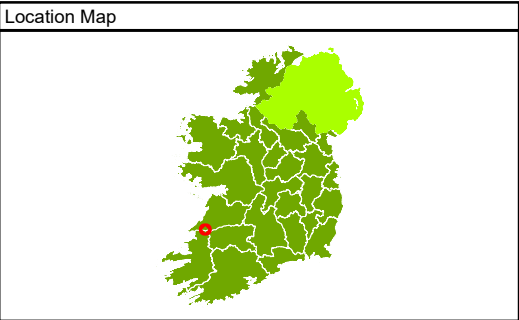
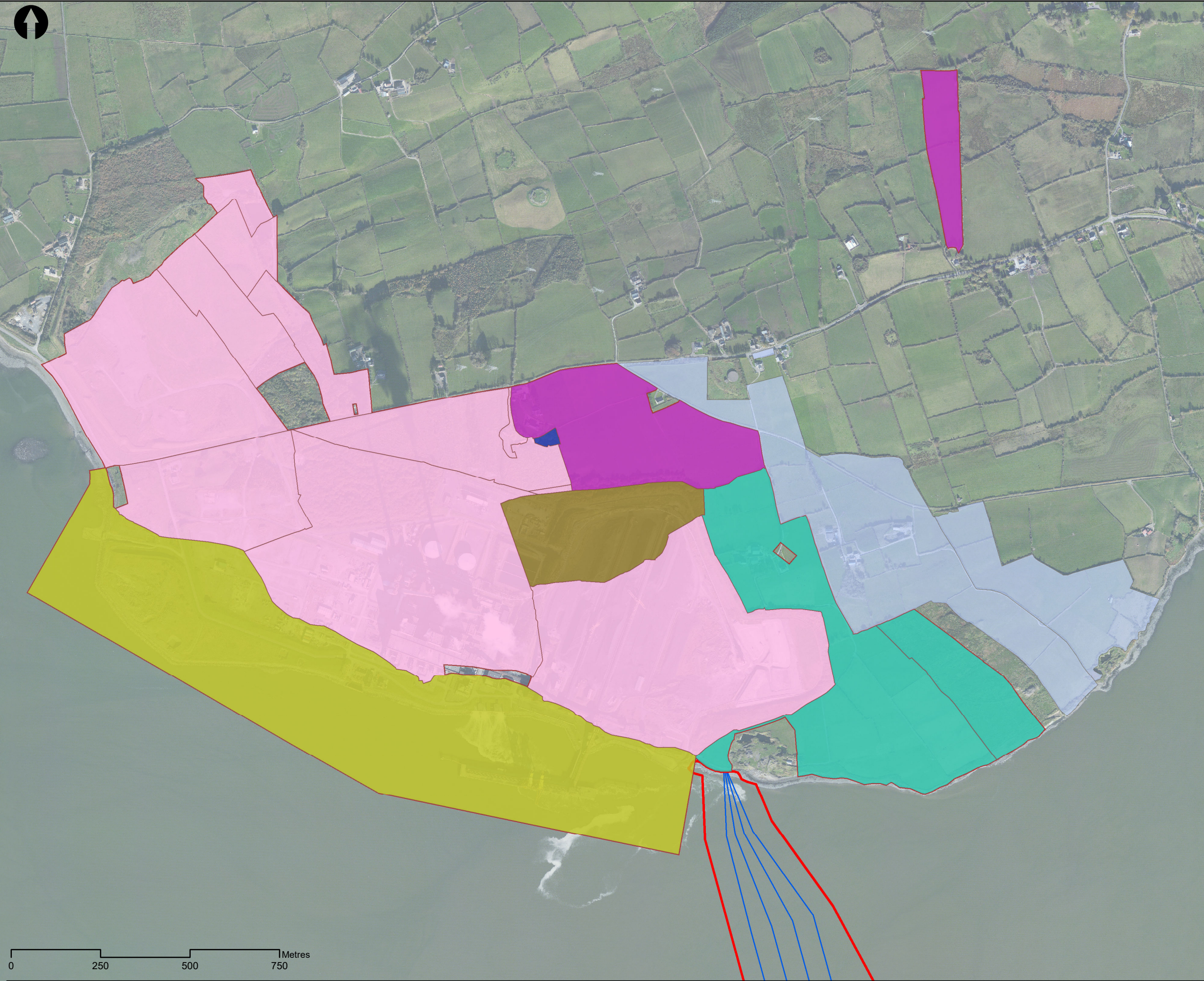
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Drawing Number

379408-MMD-XX-00-GIS-N-1005



Key to Symbols

- Project Area
- Cable Routes

PRAI Folios

- CE17786F - ELECTRICITY SUPPLY BOARD
- CE28033N - ELECTRICITY SUPPLY BOARD
- CE4728F - ELECTRICITY SUPPLY BOARD
- CE57420F - ELECTRICITY SUPPLY BOARD
- CE27241N - PRIVATE OWNERSHIP
- CE6741N - PRIVATE OWNERSHIP

Notes

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1	12/02/2020		Issue for review		
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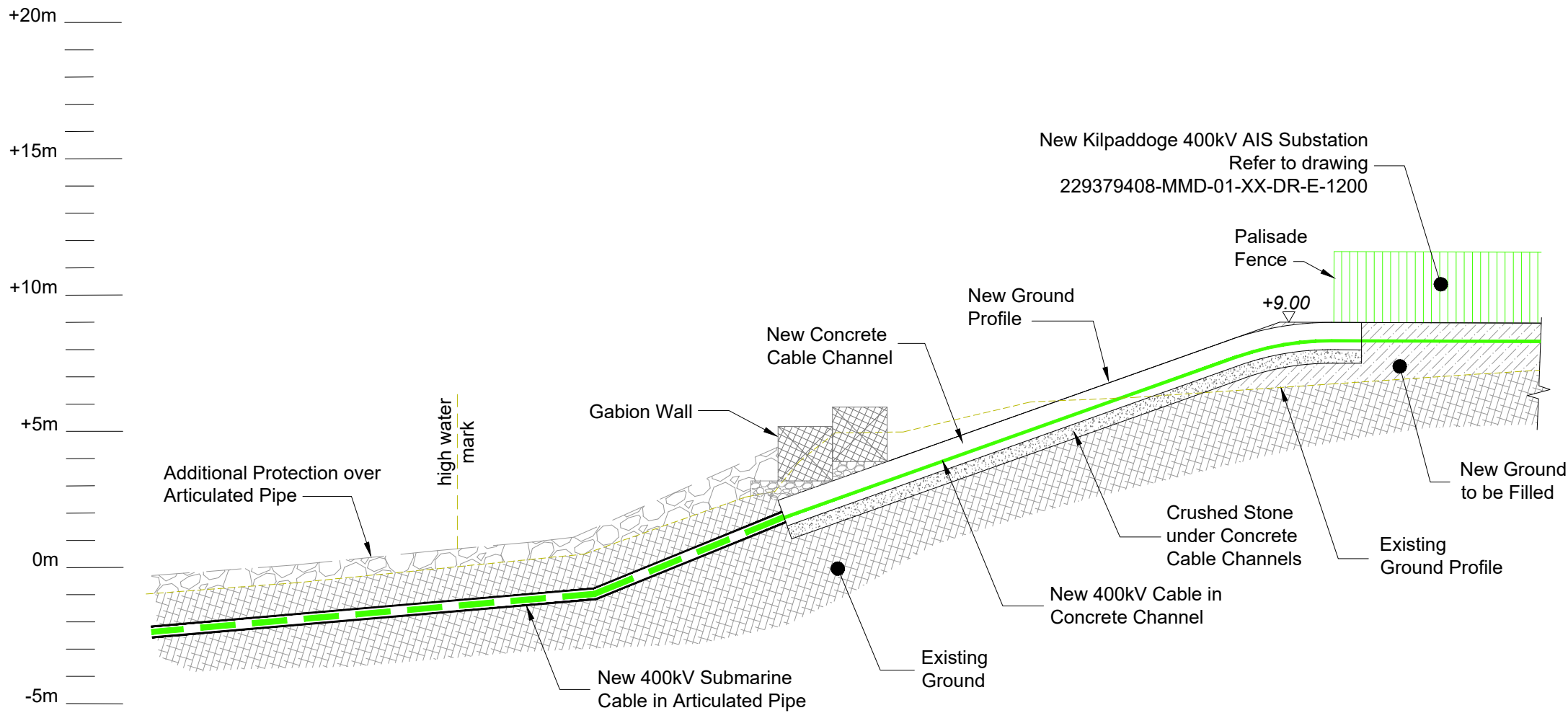
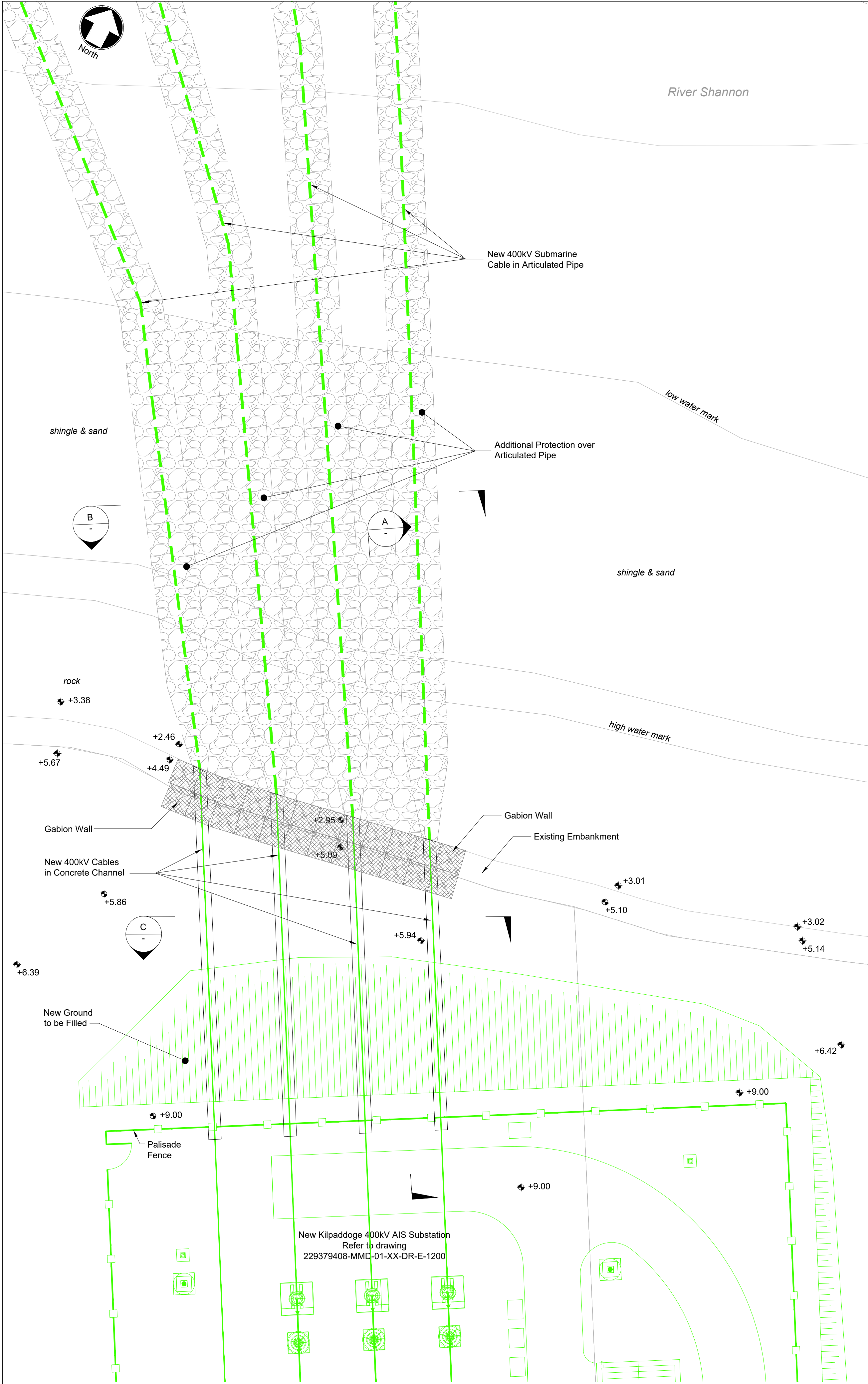
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Adjacent Landowner Folios
North Option

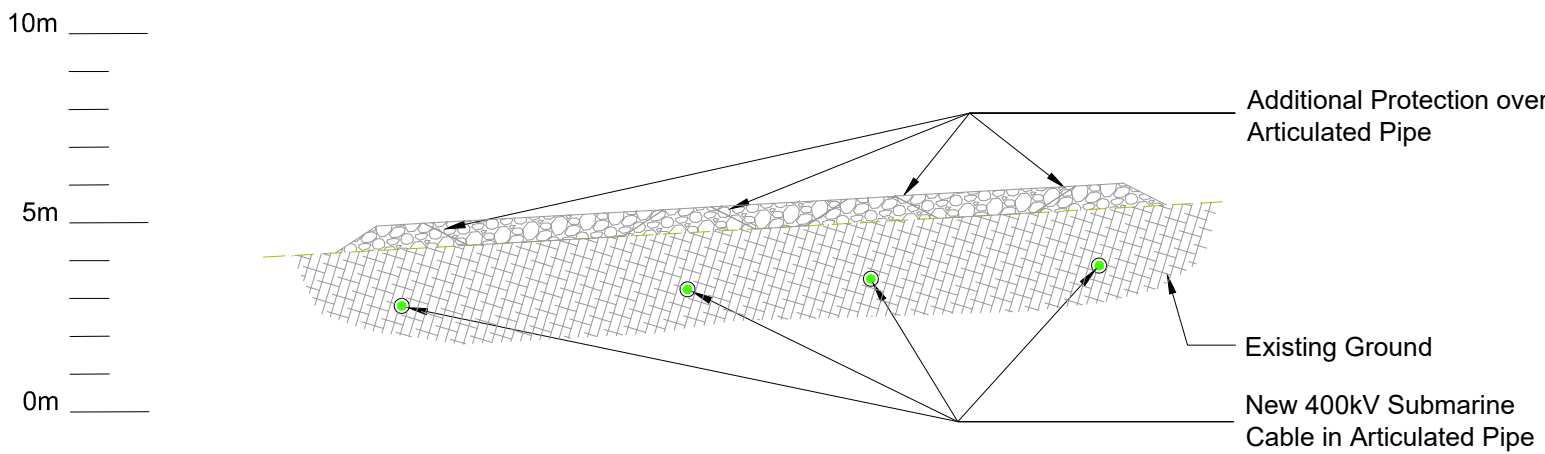
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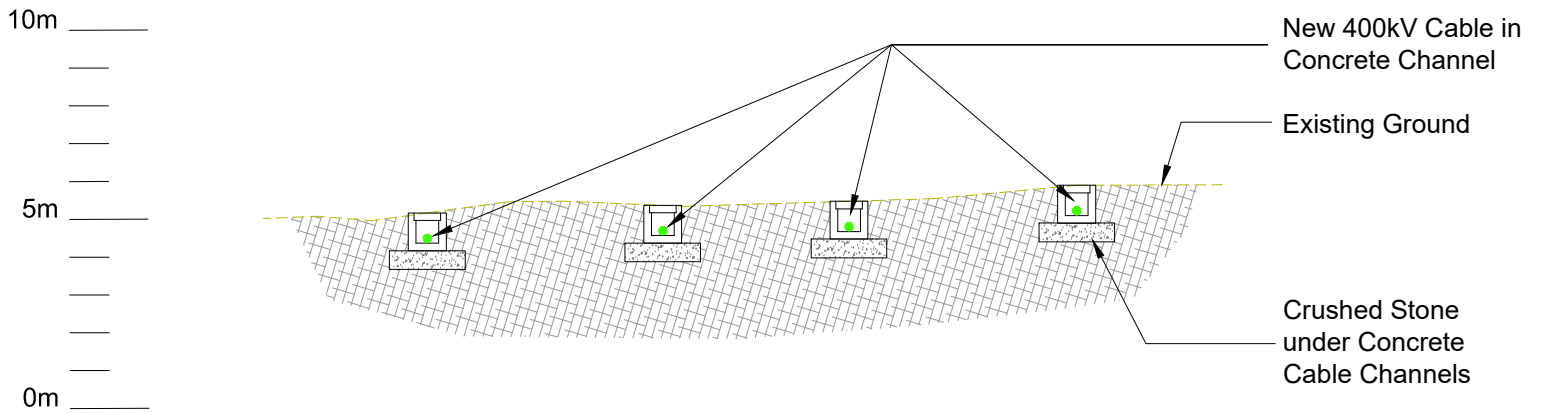
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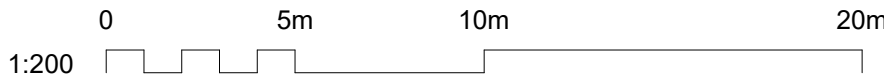
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Section B-B
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Section C-C
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- Notes
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 - All levels are in metres above/below Malin Head datum.

- Key to symbols
- New Land Cable
 - New Submarine Cable
 - Existing Ground Profile
 - Additional Protection

Reference drawings	
229379408-MMD-01-XX-DR-E-1100	Shannon 400kV Cable - Subsea Cable - Overall Plan Layout
229379408-MMD-01-XX-DR-E-1113	Shannon 400kV Cable - Subsea Cable - Plan Layout Sheet 13 of 13
229379408-MMD-01-XX-DR-E-1200	Kilpaddoge 400kV AIS Substation - Overall Plan Layout

P2	08.06.2020		Issued for Client Review	
P1	09.04.2020		Issued for Client Review	
Rev	Date	Drawn	Description	Ch'k'd App'd

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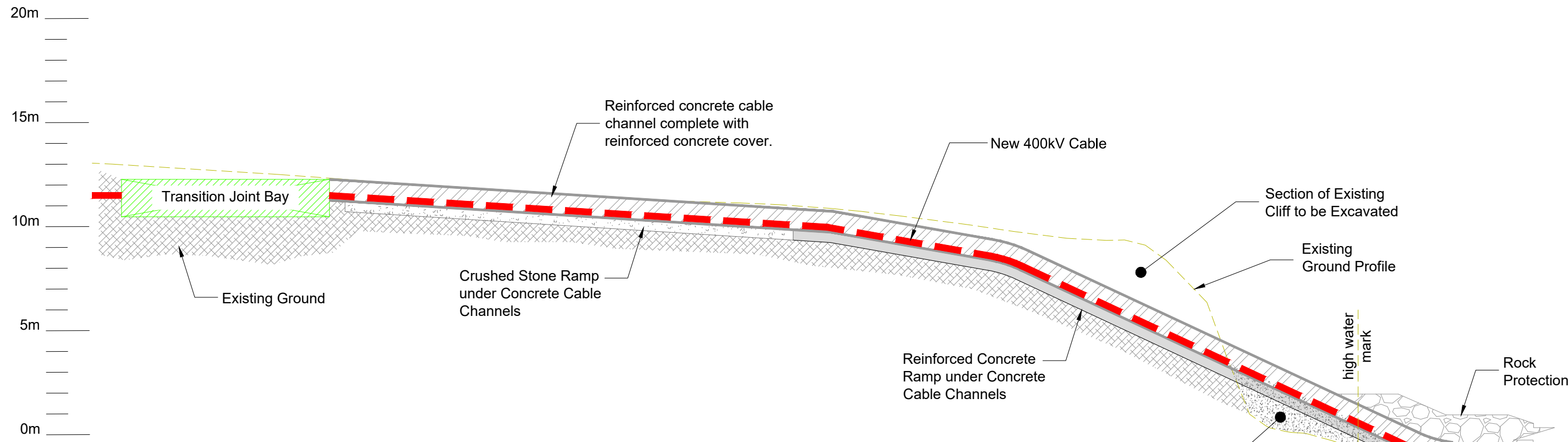
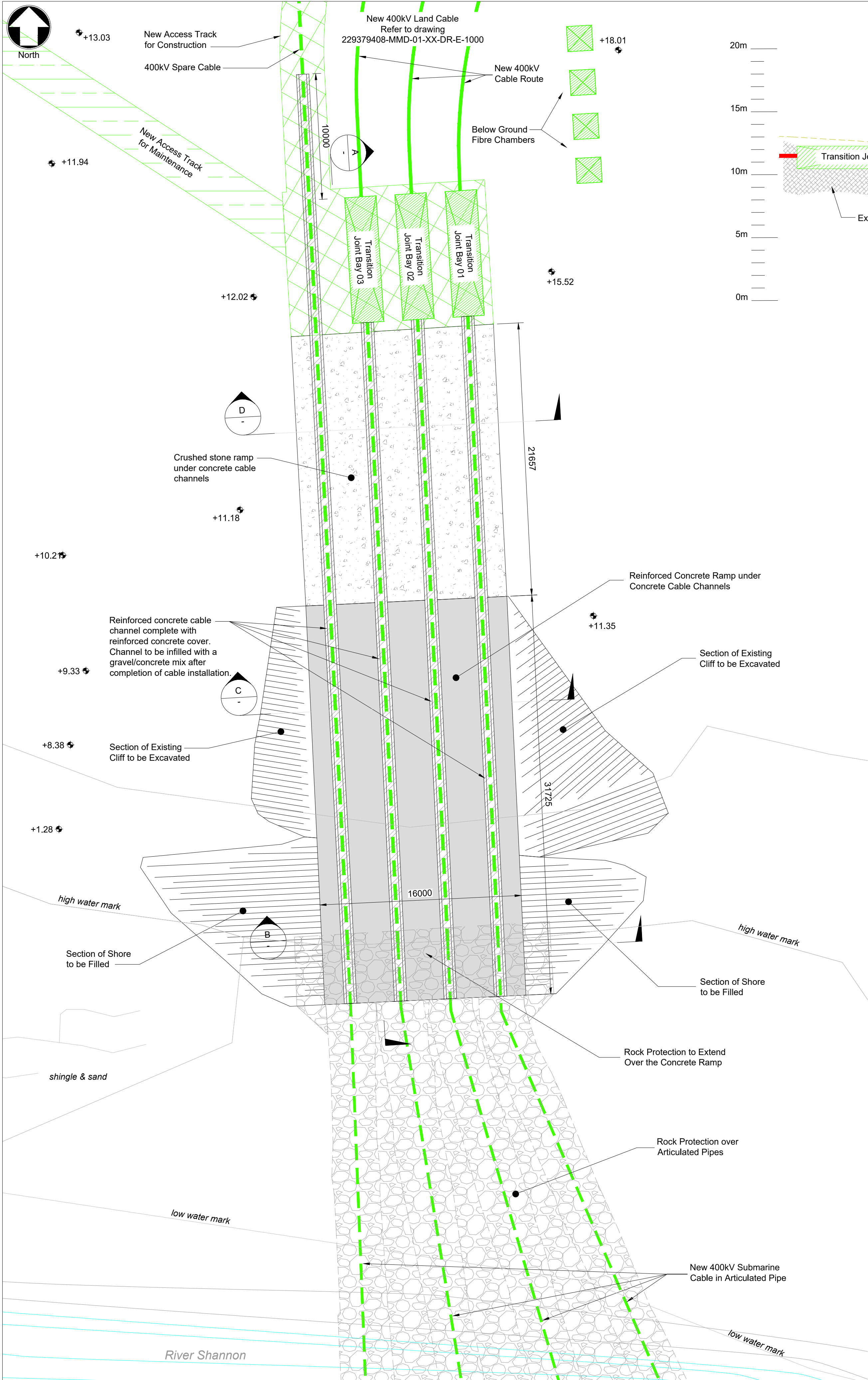
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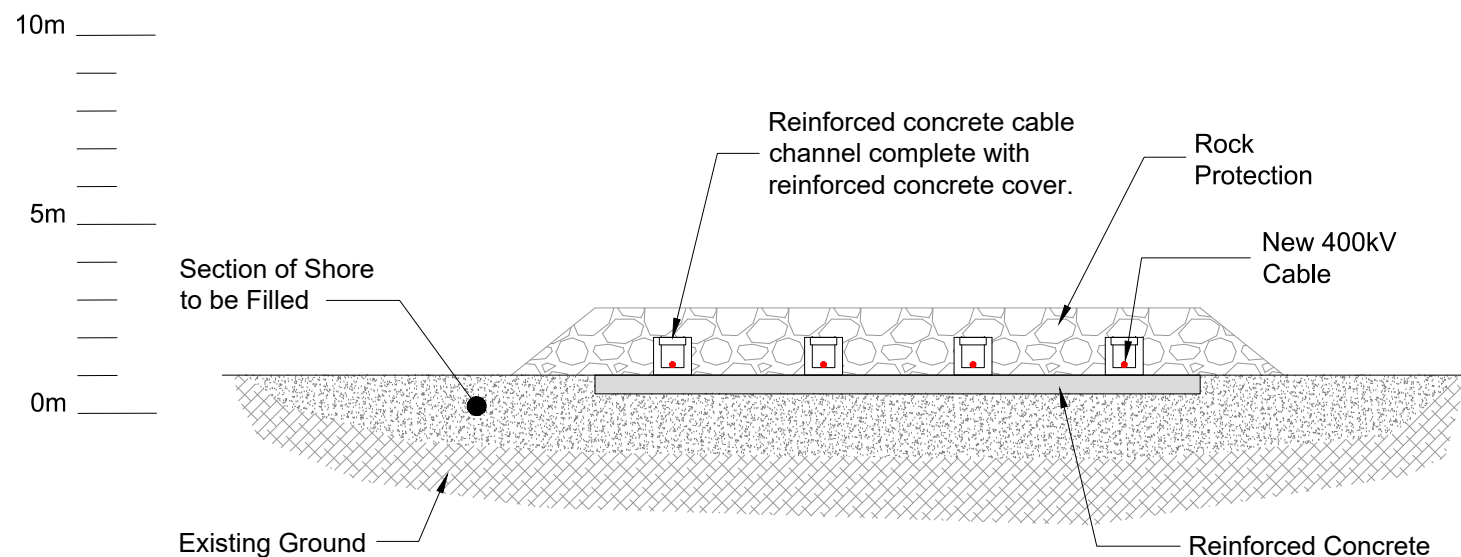
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Capital Project 0970
Cross Shannon 400 kV Cable Project
Shannon 400kV Cable - Subsea Cable
Southern Landfall - Kilpaddoge
Plan Layout & Sections

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Drawn		Coordination	
Dwg check		Approved	
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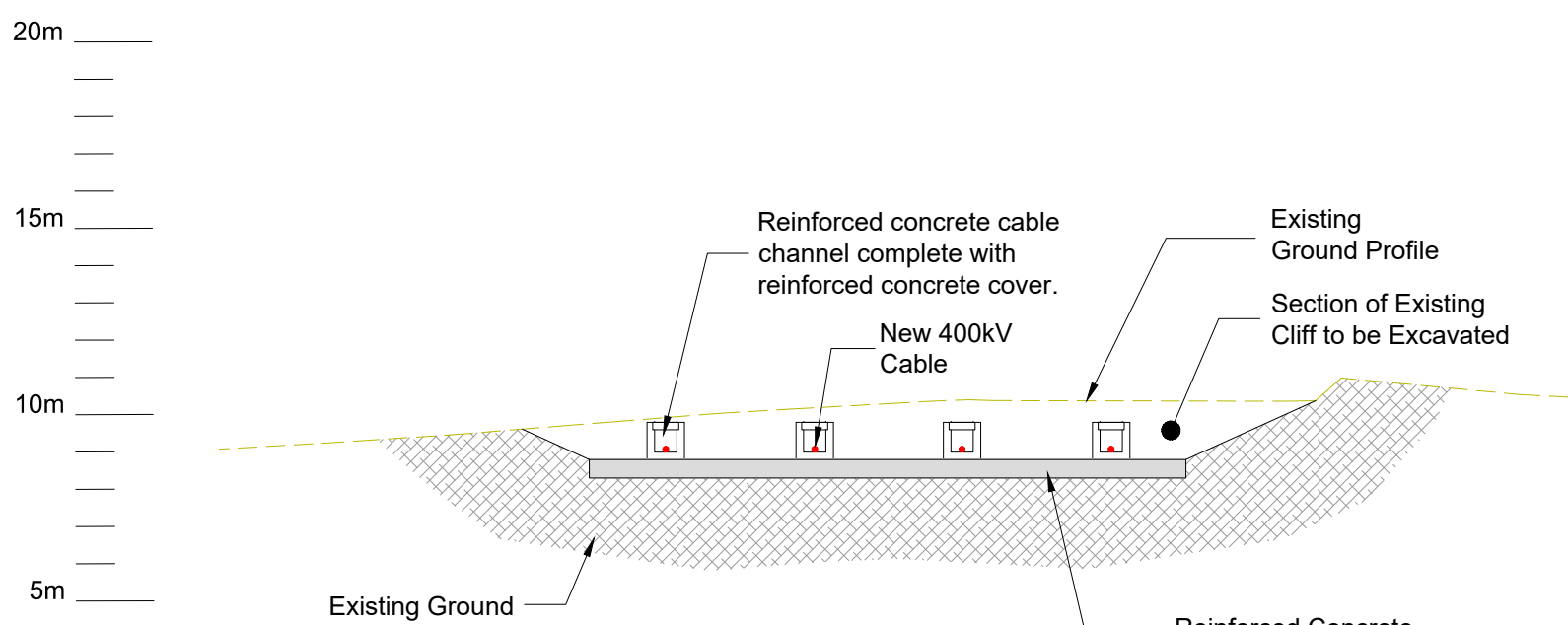
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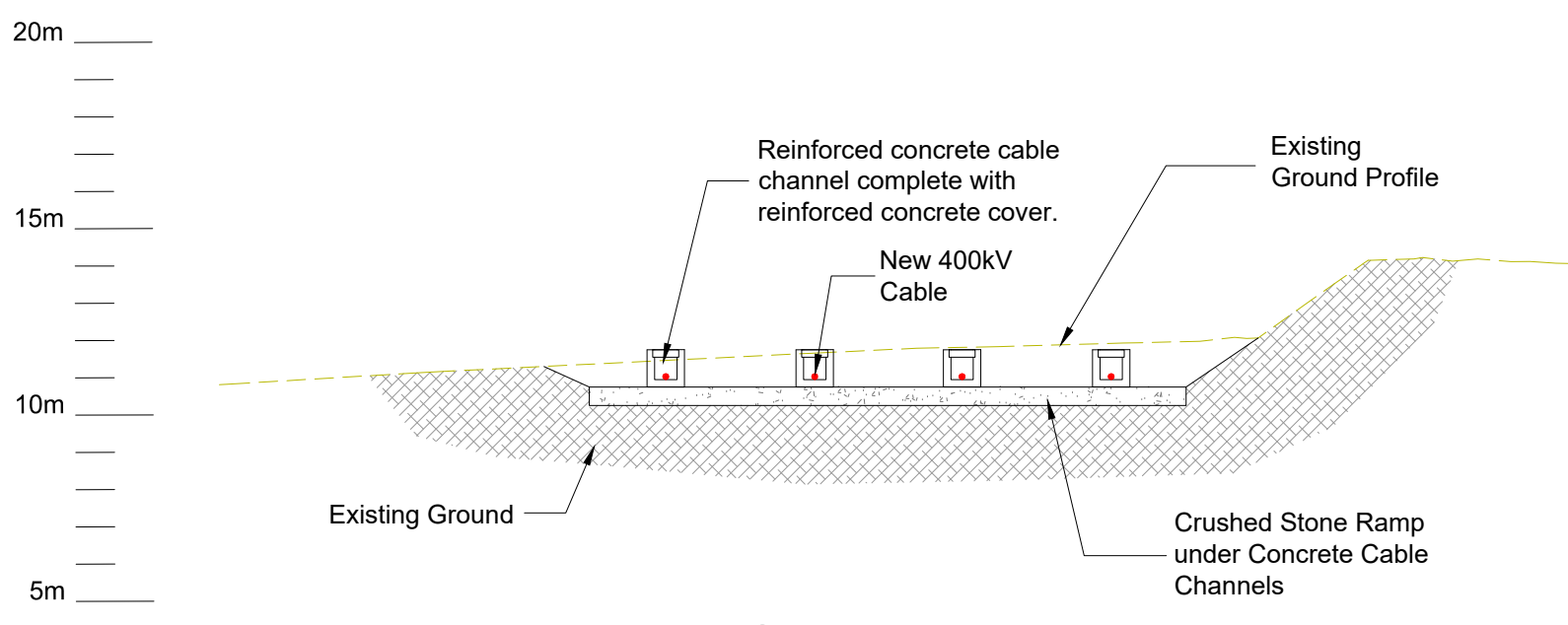
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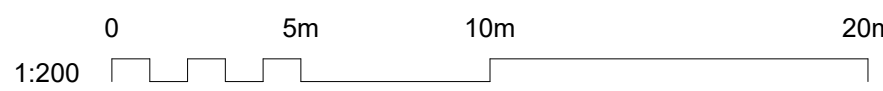
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Section C-C
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Section D-D
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Notes

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Key to symbols

- New Land Cable
- New Submarine Cable
- Seabed Topography
- Existing Ground Profile
- Road Access to Joint Bay
- Maintenance Access to Transition Bay
- Cable Joint Bay
- Crushed Stone Ramp
- Concrete Ramp
- Rock Protection

Reference drawings

- | | |
|-------------------------------|---|
| 229379408-MMD-01-XX-DR-E-1000 | Shannon 400kV Cable - Land Cable - Moneypoint Station - Overall Plan Layout |
| 229379408-MMD-01-XX-DR-E-1100 | Shannon 400kV Cable - Subsea Cable - Overall Plan Layout |
| 229379408-MMD-01-XX-DR-E-1101 | Shannon 400kV Cable - Subsea Cable - Plan Layout Sheet 1 of 13 |

P2	08.06.2020		Issued for Client Review	
P1	09.04.2020		Issued for Client Review	
Rev	Date	Drawn	Description	Ch'k'd App'd

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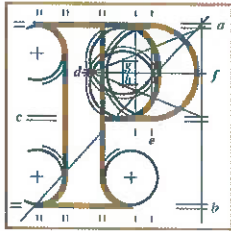
Capital Project 0970

Shannon 400kV Cable - Subsea Cable
Northern Landfall - Moneypoint
Plan Layout & Sections

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Dwg check		Approved	
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Drawing Number

229379408-MMD-01-XX-DR-E-1120



An
Bord
Pleanála

**Board Order
ABP-307798-20**

Planning and Development Acts, 2000 to 2020

Planning Authority: Clare County Council and Kerry County Council

Application for approval under section 182A(1) of the Planning and Development Act 2000, as amended, in accordance with plans and particulars, including a Natura impact statement, lodged with An Bord Pleanála on the 30th day of July, 2020 by Eirgrid plc care of Mott MacDonald Ireland Limited of South Block, Rockfield, Dundrum, Dublin.

Proposed Development:

A proposed electricity transmission infrastructure development and associated works (known as the 'Cross Shannon 400 kV Cable Project') generally comprising the laying of 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 proposed development comprises 3 main elements:

1. Connection of a 400 kV UGC installation at the Moneypoint 400 kV electricity substation (Co. Clare), including:
 - the laying of 3 no. 400 kV UGC [approx. 1.8 kilometres (km) each] between the existing Moneypoint 400 kV electricity substation and 3 no. land-submarine transition joint bays located east of the existing

Moneypoint Generation Station. The UGC will be installed by standard trenching and includes the provision of 3 no. joint bays along their length and the associated provision, upgrading and/or extension of existing internal access tracks to provide operational vehicular access,

- the provision of 4 no. land-submarine transition joint bays located east of the existing Moneypoint Generation Station to connect the land cables to submarine cables (this arrangement also includes a land-submarine transition joint bay for the spare submarine cable).

2. 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 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.

3. Connection of a 400 kV UGC installation and substation extension at the Kilpaddoge 220/110 kV electricity substation (Co. Kerry) including:

- the laying of the 4 no. 400 kV UGC [approx. 51 metres (m) in length] from the southern foreshore of the Lower Shannon Estuary, to a

- proposed extension (approx. 5,500 m²) to the north of the existing Kilpaddoge 220/110 kV electricity substation,
- the provision, within the proposed substation extension, of a 400/220 kV AIS compound, containing electrical equipment and apparatus to connect the submarine cables to the existing Kilpaddoge 220/110 kV electricity substation including the following:
 - 9 no. surge arrestors (approx. 7.9 m high);
 - 6 no. cable sealing ends (approx. 7.4 m high);
 - 1 no. 400 / 220 kV transformer (approx. 8.9 m high);
 - 9 no. post insulators (approx. 9.8 m high);
 - 1 no. disconnector (approx. 8.6 m high);
 - 9 no. instrument transformers (approx. 7.6 m high);
 - 3 no. circuit breakers (approx. 7.5 m high);
 - 5 no. lightning protection masts (approx. 25 m high);
 - a control building (approx. 14.6m x 6.6m x 4.6m high);
 - an associated access track (approx. 155 m in length and 5 m in width);
 - 12 no lighting poles (approx. 9 m high);
 - 3 no. 220 kV UGC (approx. 151 m in length);
 - the AIS compound will be enclosed by a palisade fence (approx. 2.6 m in height).

The proposed development includes all associated and ancillary development, including communication links, temporary construction compounds, temporary construction tracks, site development, landscaping works and vegetation removal. Access to the existing electricity substations will be retained from their existing entrances onto the N67 Road in Co. Clare and the L1010 Tarbert Coast Road in Co. Kerry.

Decision

APPROVE the proposed development under section 182A of the Planning and Development Act, 2000, as amended, in accordance with the said plans and particulars based on the reasons and considerations under and subject to the conditions set out below.

DETERMINE under section 182B, as amended, the sum to be paid by the undertaker in respect of costs associated with the application as set out in the Schedule of Costs below.

Matters Considered

In making its decision, the Board had regard to those matters to which, by virtue of the Planning and Development Acts and Regulations made thereunder, it was required to have regard. Such matters included any submissions and observations received by it in accordance with statutory provisions.

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),
 - 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:
 - the National Development Plan 2018-2027,
 - the National Planning Framework Project Ireland 2040,

- the Government Policy Statement on the Strategic Importance of Transmission and Other Energy Infrastructure 2012,
- regional and local level policy, including the:
 - Regional Spatial Economic Strategy for the Southern Region 2020,
- 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.

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 Special Area of Conservation (Site Code: 002165), the River Shannon and River Fergus Estuaries Special Protection Area (Site Code: 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 Special Area of Conservation (Site Code: 002165) and the River Shannon and River Fergus Estuaries Special Protection Area (Site Code: 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 Special Area of Conservation (Site Code: 002165) and the River Shannon and River Fergus Estuaries Special Protection Area (Site Code: 004077),
- (ii) mitigation measures which are included as part of the current proposal,
- (iii) the Conservation Objectives for these European Sites, and
- (iv) the 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 sites' 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.

Proper Planning and Sustainable Development

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.

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 environmental protection.

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 interests 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 shall 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 Construction Environmental Management Plan (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.

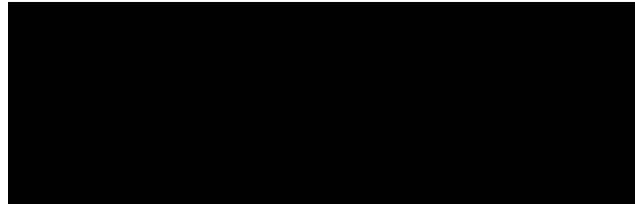
- 10. Noise levels from the substation shall not exceed 55 dB(A) rated sound level (corrected sound level for any tonal or impulsive component) at dwellings between 0800 hours and 2200 hours on any day and shall not exceed 45dB(A) at any other time. Procedures for the purpose of determining compliance 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.

Schedule of Costs

In accordance with the provisions of section 182B of the Planning and Development Act 2000, as amended, the amount due to be reimbursed to the applicant is **€68,438**

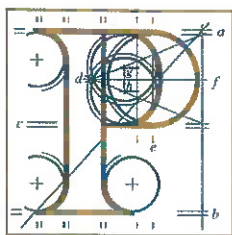
A breakdown of the Board's costs is set out in the attached Appendix 1.



**Member of An Bord Pleanála
duly authorised to authenticate
the seal of the Board.**



Dated this *4th* day of *June* 2021



An
Bord
Pleanála

Board Order –
Appendix 1

ABP-307798-20

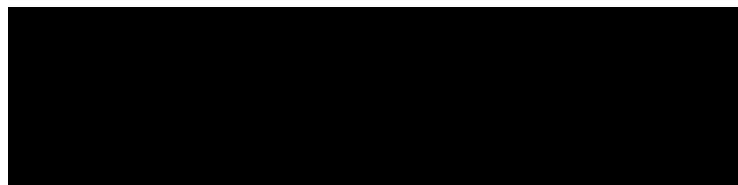
Strategic Infrastructure Development

Costs of determining the Application

Case Number: ABP-307798-20 (VA)

Proposed Development: 400kV electrical transmission cables, extension to the existing Kilpaddoge electrical substation in the townland of Carrowdotia, South County Clare and Kilpaddoge, County Kerry.

Board Costs		
(1)	Cost (calculated based on Inspector's time)	
	Inspector 1 (pre-application consultation) [REDACTED]	
	Inspector 2 (application) [REDACTED]	
(2)	Costs invoiced to Board	N/A
	Total chargeable costs	[REDACTED]
Board Fees		
(3)	Application Fee - [REDACTED]	[REDACTED]
	Pre-application Consultation Fee - [REDACTED]	[REDACTED]
(4)	Observer fees paid	€0
	Net amount due to be refunded to applicant	[REDACTED]



**Member of An Bord Pleanála
duly authorised to authenticate
the seal of the Board.**



Dated this *4th* day of *June* 2021

**Independent Environmental Consultant's
Request for Further Information (Number 2)
Submitted to EirGrid PLC 26th of January 2022**

284319-00 EirGrid Cross Shannon Electricity Cable FS007083 Application for Foreshore Consent

We refer to the application for Foreshore consent, file reference FS007083 EirGrid Cross Shannon Electricity Cable. A request for additional information was sent by the Foreshore Section to the Applicant on 2 December 2021 and a response was received, dated 7 January 2022. We have reviewed the Applicant's response. The response to item 2 in the previous request does not provide the information we require. We have repeated the query below. We would be happy to meet the Applicant if they require clarification of the query.

1. The Conservation Objectives for the Lower River Shannon SAC, (NPWS, 20121) 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.
-

¹ National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht *Conservation objectives supporting document - marine habitats and species, Lower River Shannon SAC (site code: 2165). Version 1.* NPWS (2012)., 33pp.

**Applicant's Response to
Request for Further Information (Number 2)
Submitted to Foreshore Unit 22nd of February 2022**

[REDACTED]
Foreshore Section

Department of Housing, Local Government & Heritage

Newtown Road

Wexford

Y35 AP90

22nd Feb 2022

RE: Request for Further Information FS007083 EirGrid Cross Shannon Electricity Cable

Dear [REDACTED],

The Foreshore Licence application (Ref: FS007083 EirGrid Cross Shannon Electricity Cable) was submitted to the Department of Housing, Local Government & Heritage (the Dept.) on the 4th May 2021 by EirGrid Plc with the consent and approval of the Electricity Supply Board (ESB). This application was for a new 400 kV cable across the Shannon Estuary between the Moneypoint 400 kV Electricity Substation and Kilpaddoge 220/110 kV Electricity Substation.

The Dept. issued a Request for Further Information (RFI) on the 2nd December 2021, to which EirGrid submitted a response on 7th January 2022.

A second Request for Information was issued by the Dept. on 26th January, and a meeting was held on the 31st January between EirGrid representatives, the Dept. and their Independent Environmental Consultants where EirGrid sought clarification over what information was required to be provided to satisfy the request. A copy of the second RFI is enclosed.

It is EirGrid's understanding that an assessment is required of the area of the "*Faunal turf-dominated subtidal reef community*" in each of the Annex I habitats affected by Impact Mechanisms 5 (physical disturbance) and 6 (sedimentation of resuspended solids), and an assessment of whether the project would result in significant effects to an approximate area of 15% of this interpolated area.

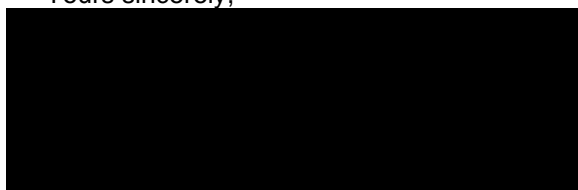
This assessment has been carried out on behalf of EirGrid by the environmental and hydrographic consultants AQUAFACT International Services Ltd. A copy of the AQUAFACT report to EirGrid is enclosed.

The calculation of the potentially impacted area of this habitat type due to this project, between the two Qualifying Interest habitats in question, namely, Estuaries (1130) and Reefs (1170), on a percentage basis is a total of **0.45%** (see details provided in the table below). This figure is an order of magnitude lower than the 15% threshold level stipulated in the Conservation Objectives for the Lower Shannon SAC. Please refer to the AQUAFACT report enclosed, dated February 2022, for further details of this assessment.

Community type	Estuaries [1130]	Reefs [1170]
<i>Faunal turf-dominated subtidal reef community area (ha)</i>	981 ha	9,692 ha
Cross Shannon Cable Trench Area (ha)	4.005 ha	4.005 ha
% overlap	0.41%	0.04%

I trust that the response provided is sufficient for your independent environmental consultant to complete their review and we look forward to receiving your determination at your earliest convenience.

Yours sincerely,



EirGrid Project Manager
Cross Shannon 400 kV Cable Project

Enclosed

- Request for Further Information FS007083 EirGrid Cross Shannon Electricity Cable, received 26th January 2022
- Report provided to EirGrid by AQUAFACT International Services Ltd, titled "*Response to Request for Further Information with regard to FS007083 Cross Shannon Electricity Cable*", dated February 2022

Encl.

284319-00 EirGrid Cross Shannon Electricity Cable FS007083 Application for Foreshore Consent

We refer to the application for Foreshore consent, file reference FS007083 EirGrid Cross Shannon Electricity Cable. A request for additional information was sent by the Foreshore Section to the Applicant on 2 December 2021 and a response was received, dated 7 January 2022. We have reviewed the Applicant's response. The response to item 2 in the previous request does not provide the information we require. We have repeated the query below. We would be happy to meet the Applicant if they require clarification of the query.

1. The Conservation Objectives for the Lower River Shannon SAC, (NPWS, 20121) 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.
-

¹ National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht *Conservation objectives supporting document - marine habitats and species, Lower River Shannon SAC (site code: 2165). Version 1.* NPWS (2012)., 33pp.



**Response to Request for Further Information with regard to
FS007083 Cross Shannon Electricity Cable**

**Produced by
AQUAFACT International Services Ltd**

February 2022

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12 KILKERRIN PARK,
GALWAY.**

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Report Approval Sheet

Client	Mott MacDonald
Report Title	Response to Request for Further Information FS007083 Cross Shannon Electricity Cable
Job Number	JN1408
Report Status	Final
Issue Date	21/02/2022

Rev	Status	Issue Date	Document File Name	Author (s)	Approved by:
1	Draft	21/02/2022	Response to RFI FS007083		
2	Final	21/02/2022	Response to RFI FS007083		



Table of Contents

1. Introduction

Mott MacDonald requested AQUAFAC to prepare a response to 1 item on a Request for Further Information with regard to FS007083 Cross Shannon Electricity Cable which is:

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.

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.

2. Item : Conservation Objectives etc.

It should be noted here that the cable crossing route passes over the following 2 Annex 1 habitats: Estuaries [1130] and Reefs [1170].

In paragraph 1, last line, the RFI notes that in the screening for Appropriate Assessment, it was concluded 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 Screening Statement for Appropriate Assessment and Natura Impact Statement assessed the effects of Impact Mechanism 5 (physical disturbance) and Impact Mechanism 6 (sedimentation of resuspended solids) on the receiving environment.

The relevant community in question is the *Faunal turf-dominated subtidal reef community*. At the cable crossing route, this marine community type is found in the following Annex I habitats: Estuaries [1130] and Reefs [1170]. The Conservation Objective for these habitats in the Lower River Shannon SAC is to maintain their favourable conservation condition that are defined by the following attributes: habitat area and community distribution.

Specifically, the RFI noted that *...There is no area of the “Faunal turf-dominated subtidal reef community” to determine if it will surpass the 15% threshold which amounts to a significant disturbance under the site specific conservation objectives”*.

Information on route lengths and trench width of each cable crossing was provided to AQUAFAC by Mott MacDonald (see **Table 1** below). The area of *Faunal turf-dominated subtidal reef community* affected by the cable crossing was calculated by multiplying the length and width of each route. These are presented as both m² and hectares in **Table 1** below.

Table 1: Route lengths (m), width, and trench area (as m² and ha) across Community Type *Faunal turf dominated subtidal reef community*.

Route length (m) across Community Type	Trench nominal width (m)	Trench Area (m ²)	Trench Area (ha)
960	10	9,600	0.96
970	10	9,700	0.97
1,040	10	10,400	1.04
1,035	10	10,350	1.035
Total		40,050	4.005

Cable routes overlap the following two Qualifying Interest habitats: Estuaries 1130 and Reefs 1170. The spatial extent of areas of *Faunal turf-dominated subtidal reef community* in the Qualifying Interests Estuaries [1130] and Reefs [1170] of the Lower Shannon SAC can be found on the NPWS website and these are presented in **Table 2** below.

Table 2: Area (ha) of Community Type *Faunal turf-dominated subtidal reef community* within Qualifying Interest habitats of the Lower River Shannon SAC (Site code: 2165) (NPWS 2012¹).

Community type	Estuaries [1130]	Reefs [1170]
<i>Faunal turf-dominated subtidal reef community</i>	981 ha	9,692 ha

The information presented in **Table 1** and **Table 2** was used to determine then percentage overlap of the cable routes with the *Faunal turf-dominated subtidal reef community* in both Qualifying Interests; (see **Table 3** below).

Table 3: Cable route across Community Type *Faunal turf-dominated subtidal reef community* within Qualifying Interest habitats Estuaries [1130] and Reefs [1170] (% overlap).

Community type	Estuaries [1130]	Reefs [1170]
<i>Faunal turf-dominated subtidal reef community</i>	981 ha	9,692 ha
Trench Area (ha)	4.005 ha	4.005 ha
% overlap	0.41%	0.04%

The % 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%, 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.

¹

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

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 km² 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.

Appendix 3

Screening Determination for Appropriate Assessment

Project reference: FS007083 Eirgrid – to lay of four submarine electricity cable across the Shannon Estuary between Co. Kerry and Co. Clare.

In accordance with Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC) and Regulation 42(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 as amended ('The Regulations'), the Department of Housing, Local Government and Heritage has undertaken Screening for Appropriate Assessment (AA) to assess, in view of best scientific knowledge and the conservation objectives of relevant European sites, if the proposed project to lay an electricity cable across the Shannon Estuary, individually or in combination with other plans or projects, would be likely to have a significant effect (s) on a European site(s).

In accordance with Regulation 42(6) of the European Communities (Birds and Natural Habitats) Regulations 2011 SI 477 as amended, the Department of Housing, Local Government and Heritage has made a determination following screening that an Appropriate Assessment is required as the project, individually or in combination with other plans or projects, is likely to have a significant effect on European sites. The risk of likely significant effects on European sites cannot be excluded on the basis of objective evidence. This determination is based on the location, scale, extent and duration of the proposed development, including temporary works, and has not taken account of measures intended to avoid or reduce significant effects on European sites.

Signature and Date of Recommending Officer:  **8th of March 2022**

Signature and Date of the Decision Maker: