Cyfoeth Naturiol Cymru
Natural Resources Wales

Ein cyf/Our ref: 20031687
Eich cyf/Your ref: EN010112

Address
Maes Newydd,
Llandarcy,
Neath Port-Talbot
SA10 6JQ

The Planning Inspectorate
Temple Quay House
2 The Square
Bristol
BS1 6PN

6 Chwefror / February 2022

Er sylw / For the attention of: Jake Stephens

Annwyl / Dear Jake,

FFERM WYNT ALLTRAETH AWEL Y MÔR ARFAETHEDIG / PROPOSED AWEL Y MOR OFFSHORE WINDFARM

CYFEIRNOD YR AROLYGIAETH GYNLLUNIO / PLANNING INSPECTORATE REFERENCE: EN010112

EIN CYFEIRNOD / OUR REFERENCE: 20031687

RE: NATURAL RESOURCES WALES' WRITTEN SUBMISSION FOR DEADLINE 5

Thank you for your Rule 8 letter, dated 27th September 2022, requesting Cyfoeth Naturiol Cymru / Natural Resources Wales' (NRW) comments regarding the above.

This letter comprises NRW's Deadline 5 submission (see Annex A of this letter) which provides our responses to the Examining Authority's Second of Round of Questions, as issued on 23rd January 2023.

NRW Advisory (NRW (A)) advise that a new set of Conservation Objectives for Liverpool Bay have recently been published (Liverpool Bay/Bae Lerpwl SPA - UK9020294A [redacted] and Natural Resources Wales / Find protected areas of land and sea). We will shortly provide the Examining Authority with an addendum to provide additional advice regarding any implications for our advice and for the Habitats Regulations Assessment.

This response should be read in conjunction with, and are additional to, NRW's previous submissions (as provided in REP1-080, REP3-026, and REP4-045).

Please do not hesitate to contact Nia Phillips ([redacted]@cyfoethnaturiolcymru.gov.uk) and Bryn Griffiths ([redacted]@cyfoethnaturiolcymru.gov.uk) should you require further advice or information regarding these representations.

Yn gywir / Yours sincerely,

[redacted]

Andrea Winterton
Marine Services Manager
Natural Resources Wales

ANNEX A

ExQ 2	Question to:	Question	NRW comments
2. Biodiversity, Ecology and Natural Environment			
2.2	NRW, DCC, CCBC, RSPB, NWWT	**General** Please advise if you have any issues with the potential mitigation measures in the Schedule of Mitigation [REP2-024] and Marine Licence Principles (REP2-022), and if issues exist, please reference with explanation and evidence to justify.	The response to this question is provided in two parts – one relating to NRW Advisory and the other to NRW Regulation and Permitting Services: **NRW ADVISORY:** NRW (A) has provided its position(s) on the appropriateness of the mitigation measures outlined in the Schedule of Mitigation and the Marine Licence Principles documents throughout its submissions to the examination. For the explanation and justification of these positions we refer the ExA to REP1-080 and REP3-026. Subject to the mitigation measures being applied and secured - as detailed in our submissions - then NRW (A) is content with the measures proposed. These positions are also reflected in the Statements of Common Ground with the Applicant [REP3-020]. In order to aid your consideration, we have provided a summary below. **Physical Processes:** We have no issues with the potential mitigation measures. **Benthic Ecology:** We have no issues with the potential mitigation measures. **Marine Water and Sediment Quality:** - We have no issues with the potential mitigation measures. **Fish and Shellfish:** We have no issues with the potential mitigation measures**.** **Marine Ornithology:** We have no issues with the potential mitigation measures. **Marine mammals:** We have no issues with the potential mitigation measures proposed and as outlined in the Marine Mammal Mitigation Protocol (MMMP).

			NRW REGULATION AND PERMITTING SERVICES: Previous comments made by NRW's Regulation and Permitting Services in relation to the Schedule of Mitigation and Marine Licence Principle documents, and as detailed in NRW's Written Representation [REP1-080], still apply. Without prejudice to the general determination of the marine licence application, NRW's Marine Licensing Team (MLT) is in general agreement with these documents on the basis that the mitigation measures identified and proposed by the Applicant have been captured within previous Marine Licences. As the Marine Licence application is still in determination, we are not able at this stage to comment more substantively on this document. NRW's MLT would, however, highlight in reference to Mitigation 17 "*safety Zones*" [REP2-024] that the designation of Restricted Navigational Areas are not within the Marine and Coastal Access Act (MACA) 2009 jurisdiction, and accordingly, the Applicant should ensure that the necessary consents are obtained from the appropriate authorities. NRW's MLT also highlight that an updated Marine Licence Principles document has been submitted to NRW MLT in support of the Marine Licensing application on the 30 January 2023.
2.7	Applicant, NRW	**General** Please could the Applicant and NRW give a progress update on European Protected Species (EPS) Licences likely to be required for the Proposed Development.	NRW advise that it will ultimately be for the Applicant to determine whether (and for which species) a European Protected Species (EPS) licence would need to be applied for. The Applicant and its consultant ecologists are best placed to determine the risk of an offence and therefore the need for a licence. However, whist it is at the discretion of the Applicant to apply for an EPS licence, as detailed in our previous submissions, NRW (A) encourage the Applicant to apply for an EPS licence to cover the possibility of impacts to deliberate injury (and deliberate disturbance) to cetacean EPS.
2.12	Applicant, NRW	**Offshore – Ornithology** RSPB Written Representation additional references [REP2-058] includes marine environmental research considering	NRW agrees that research evidence shows that offshore windfarms cause disturbance and displacement of red-throated diver (RTD) around Europe, in the UK and in other parts of Liverpool Bay SPA. These studies have reported variations in the apparent

		displacement of red-throated divers (*Gavia stellata*) from offshore wind farms and refers to *"significant effect could be detected up to 10–15 km away. The telemetry data further indicated that the displacement distance decreased with decreasing visibility. The displacement distance was also shorter during the day than during the night, potentially as a response to aviation and navigation lights of the wind farms*". Please comment on the above italics statement and its relevance to the behaviour of red-throated divers at Liverpool SPA and effects on any conservation objectives.	strength of displacement effects across locations, e.g., in the UK, RTD displacement distances of up to 8km from the Lincs, Lynn and Inner Dowsing offshore windfarms (OWFs) were recorded in the Greater Wash (Webb *et al.* 2017), up to 11.5km from London Array offshore wind farm in the Outer Thames Estuary (APEM 2021). From Europe, Petersen *et al*. (2006) reported the maximum extent of RTD displacement to be 4km at Horns Rev I, and 2km at Nysted; in the German North Sea (Heinänen *et al.* 2016; Zydelis *et al.* 2016; Mendel *et al.* 2019; Heinänen *et al.* 2020; Vilela *et al*. 2020) have reported RTD displacement of up to 10-20km. However, as indicated by Vilela *et al.* (2020), seasonal and spatial factors may play a role in the specific response of divers to offshore wind farms and the results from individual studies may not be directly transferable to areas other than those considered in the individual studies. Additionally, consideration should also be given to the robustness of the different methodologies used in the studies through considering criteria including: • Suitability of the survey platform • Consistency of survey platform across surveys • Survey area • Time frame Consideration should also be given to the analysis methods used to detect and quantify displacement, as some methods (e.g. measures of absolute change) are more influenced by natural variation in numbers or changes in survey platform than others (e.g. relative or proportional measures of change). NRW has taken an evidence-based approach in order to conclude that displacement from Awel-y-Môr would have no adverse effect on site integrity (AEOSI) on the RTD feature of the Liverpool Bay SPA (see response to Q2.41).

			References APEM (2021). Final Ornithological Monitoring report for London Array Offshore Windfarm – 2021. January 2021. Heinänen, S., Zydelis, R., Dorsch, M., Nehls, G., Kleinschmidt, B., Quillfeldt, P. & Morkūnas, J. (2016). Distribution modelling of Red-throated diver based on aerial digital surveys and hydrodynamics. Presentation given at International Workshop on Red-throated Divers, Hamburg, 24-25 November 2016. Heinänen, S., Žydelis, R., Kleinschmidt, B., Dorsch, M., Burger, C., Morkūnas, J., Quillfeldt, P. & Nehls, G. (2020). Satellite telemetry and digital aerial surveys show strong displacement of red-throated divers (Gavia stellata) from offshore wind farms. Marine Environmental Research, 104989. Mendel, B., Schwemmer, P., Peschko, V., Müller, S., Schwemmer, H., Mercker, M. & Garthe, S. (2019). Operational offshore wind farms and associated ship traffic cause profound changes in distribution patterns of Loons (Gavia spp.). Journal of Environmental Management, Vol. 231, pp. 429-438. Petersen, I.K., Christensen, T.K., Kahlert, J., Desholm, M. & Fox, A.D. (2006). *Final results of bird studies at the offshore wind farms at Nysted and Horns Rev, Denmark*. NERI Report Commissioned by DONG Energy and Vattenfall A/S 2006. Vilela, R., Burger, C., Diederichs, A., Nehls, G., Bachl, F., Szostek, L., Freund, A., Braasch, A., Bellebaum, J., Beckers, B. & Piper, W. (2020) Divers (Gavia spp.) in the German North Sea: Changes in Abundance and Effects of Offshore Wind Farms. A study into diver abundance and distribution based on aerial survey data in the German North Sea. February 2020. Prepared for Bundesverband der Windparkbetreiber Offshore e.V. Webb, A., Irwin, C., Mackenzie, M., Scott-Hayward, L., Caneco, B. & Donovan, C. (2017). Lincs Wind Farm: Third Annual Post-Construction Aerial Ornithological Monitoring Report. HiDef Aerial Surveying Ltd report to Lincs Wind Farm Ltd.

			Zydelis, R., Heinänen, S., Dorsch, M., Nehls, G., Kleinschmidt, B., Quillfeldt, P. & Morkūnas, J. (2016). High mobility of Red-throated Divers revealed by satellite telemetry. Presentation given at International Workshop on Red-throated Divers, Hamburg, 24- 25 November 2016.
2.17	NRW, RSPB, Applicant	**Offshore – Ornithology (Collision Risk Modelling)** **For NRW and RSPB** a) Please advise if you have any issues related to collision risk modelling parameters bird survey data; species data; turbine data; windfarm data; and avoidance rate. If any issues remain, please provide relevant evidence to justify. Could the **Applicant** provide relevant evidence to: b) explain the potential effect on its impact assessment if the collision risk model utilised an avoidance rate for gannet of 98%; and c) explain the potential effect on its impact assessment due to different foraging and behaviour of gannets during the breeding season.	There are no issues outstanding.

2.18	Applicant, NRW	Offshore - Ornithology a) Please confirm if gannet collision risk modelling without macro avoidance is necessary; and b) respond to RSPB comments in its Written Representation [REP1-090] that a reduction to base line densities in the gannet collision risk modelling (to account for macro avoidance of wind farms) should be avoided as it has not been formally adopted by the SNCBs.	Evidence suggests that Gannets show strong macro-avoidance of offshore windfarms (for example, Dierschke *et al.,* 2016). NRW (A) has considered the approach to collision risk modelling and gannet macro-avoidance and is of the view that, given emerging evidence, gannet macro-avoidance can be used with the modelling. This approach has been discussed with Natural England and is consistent with what they recommended for windfarm casework with the North Sea. Therefore, NRW (A) advise that gannet collision risk modelling without macro avoidance is not necessary. **References** Dierschke, V., Furness, R. W., & Garthe, S. (2016). Seabirds and offshore wind farms in European waters: Avoidance and attraction. *Biological Conservation:* 202, 59–68. [redacted]
2.19	NRW	**Offshore - Ornithology** Do you consider that the outbreak of Highly Pathogenic Avian Influenza has any implications for the Applicant's assessment of effects on seabird colonies in the ES and the RIAA [APP-027]?	The Applicant's survey data is proportionate to the number of birds at breeding colonies at the time of the surveys, so is therefore still the correct approach. The survey methods were acceptable at the time they were deployed, as was the comparison with the number of birds at breeding colonies. Repeating surveys may detect fewer birds in the Awel-y-Môr array and buffer, but NRW (A) advise that further surveys are not needed at this time. NRW (A) considers that the existing surveys and their comparison with colony counts still represent the best available evidence for the area.
2.20	NRW, RSPB	**Offshore - Ornithology** Please comment on the Applicant's response to Written Representations [REP2-002] regarding Highly Pathogenic Avian Influenza (page 212) and Population Viability Analysis for gannet.	Population Viability Analysis (PVA) for gannet was not needed in the Applicant's analysis pre-HPAI so for the reasons stated in 2.19 is not necessary now. In addition, according to GPS tracking by Wakefield *et al.,* (2013), foraging gannets from Grassholm SPA are unlikely to occur here in the breeding period. **References**

			Wakefield, ED, Bodey, TW, Bearhop, S *et al.* (19 more authors) (2013) Space Partitioning Without Territoriality in Gannets. *Science*: 341 (6141). 68 - 70. ISSN 0036-8075.
2.25	Applicant, NRW	**Offshore – Ornithology** Please summarise your current position and highlight any remaining issues regarding potential impacts of the Proposed Development on the breeding seabird features of the Pen-y Gogarth/ Great Orme's Head Site of Special Scientific Interest (SSSI).	Please see REP3-026 and REP4-045 which confirms NRW (A) is now satisfied with the assessment of the potential impacts of the proposed development on the breeding seabird features of Pen-y-Gogarth / Great Orme's Head Site of Special Scientific Interest (SSSI). NRW (A) is satisfied that there will be no significant effect on the breeding seabird features of this site.
2.30	Applicant, NRW	**Offshore – Marine Mammals** a) With reference to your response to ExQ1.2.29 [REP1-007] that typically for offshore wind farm projects across the UK there is a requirement to measure underwater noise during the installation for the first four piles for same foundation type, or a representative number of piles locations or four largest piles, please can the **Applicant** clarify how the results of this underwater noise monitoring approach correlates with piling into the seabed with different sediment distribution and thickness, bedform, and bedrock types. b) Could **NRW** please described its approach including parameters to	As for most offshore windfarm developments in the North Sea, the Applicant should plan to measure a minimum of four representative piles. If there are different sediment/seabed types predicted to influence sound emissions, this should be factored into the choice of pile locations recorded. The piles chosen should also reflect those modelled in the EIA so the modelling can be validated. The Applicant is encouraged to submit all relevant noise measurement data (e.g., frequency, max Sound Pressure Level (SPL) max Sound Exposure Level (SEL), max hammer energy) to the Marine Noise Registry including information on all piling events (e.g., what, where and when). NRW (A) recommends following ISO 18406:2017 measurement of radiated underwater sound from percussive piling, which describes the methodologies, procedures, and measurement systems to be used. Please also see Robinson (2017) which helpfully describes the content of the ISO. National Physical Laboratory (NPL) Good practice Guide No. 133: Underwater noise measurement is also a useful auxiliary reference text. **References**

		underwater noise monitoring during piling for marine mammals.	Robinson, S.P (2017). An International Standard for the Measurement of Underwater Sound Radiated from Marine Pile-Driving. *The Journal of the Acoustic Society of America:*141(5): 3847. DOI: 10.1121/1.4988576
2.32	NRW	**Offshore – Marine Mammals** Please give an update regarding your position to Cumulative Effects Assessment clarification note [REP2-028] and outline any areas of concern.	Please see REP3-026 which confirms NRW (A)'s position on CEA and clarifies that we have no further concerns
2.34	Applicant, NRW	**Offshore – Marine Mammals** Although NRW does not explicitly rule out the approach of applying a D/R curve from a more sensitive species to the less sensitive species of the Minke whale it does not recommend this approach given that there are other threshold options available [REP1-080 page 26]. Please summarise your current position on the potential effects on the modelling, the impact assessment and mitigation of Minke whales as a result of other threshold options available.	Please see REP3-026 which clarifies our position with respect to D/R curves. In addition, we advise the following: Despite sound energy of pile driving being highest in the low frequency range and overlapping more with the hearing range of a minke whale than that of a harbour porpoise - pile strikes of the same unweighted single-strike SEL (SELss) are louder for a minke whale than a harbour porpoise - evidence from studies with sonar suggests that minke whale are less sensitive than harbour porpoise by about 40-50 dB (Kvadsheim *et al* 2017; Sivle *et al* 2015; Tougaard 2021). NRW (A)'s view is that the Applicant's approach of applying a harbour porpoise D/R curve to assess the impacts of noise disturbance on minke whale, might therefore be considered (over-) precautionary and likely lead to an over-estimate of the number of minke whales affected. NRW (A) advise that the Level B Harassment threshold is more appropriate to use for minke whale (160 dB re 1 µPa SPLrms, for impulsive noise; NMFS 1995, 2005). This threshold was designed using data from whales rather than porpoise or dolphins. We expect using this threshold would result in a smaller area ensonified and fewer animals affected than that using a D/R approach.

			We still agree with the Applicant that despite the use of harbour porpoise D/R curves as a proxy for minke whale, the impact on minke whales is small. **References** Kvadsheim PH, DeRuiter S, Sivle LD, Goldbogen J, Roland-Hansen R, Miller PJO, Lam FA, Calambokidis J, Friedlaender A, Visser F, Tyack PL, Kleivane L, Southall B. 2017. Avoidance Responses of Minke Whales to 1- 4kHz naval sonar. *Mar Pollut Bull*. 121:60-68. National Marine Fisheries Service (NMFS). 1995. *Small Takes of Marine Mammals Incidental to Specified Activities; Offshore Seismic Activities in southern California*. Federal Register. 60(200), 53753-53760. National Marine Fisheries Service (NMFS). 2005. *Scoping Report for NMFS EIS for the National Acoustic Guidelines on Marine Mammals.* National Marine Fisheries Service. Sivle LD, Kvadsheim PH, Curé C, Isojunno S, Wensveen PJ, Lam FPA, Visser F, Kleivane L, Tyack PL, Harris CM. 2015. Severity of Expert-Identified Behavioural Responses of Humpback Whale, Minke Whale, and Northern Bottlenose Whale to Naval Sonar. *Aquatic Mammals* 41, 469. Tougaard J. 2021. *Thresholds for Behavioural Responses to Noise in Marine Mammals* - Background note to revision of guidelines from the Danish Energy Agency.
2.35	NRW	**Onshore - Mitigation** Further to the Applicant's response to your comments to ExQ1.2.5 [REP2-003], please confirm if the Outline Landscape and Ecology Management Plan (oLEMP) [REP2-010] (and the associated draft DCO Requirement) would secure biodiversity enhancements with respect to Great Crested Newts (GCN).	We are satisfied that the Outline LEMP would secure enhancement with respect to GCNs.

2.37	NRW	**Onshore - Mitigation** Please clarify your response to ExQ1.2.5 in [REP1-080] "*Although mitigation has been presented for the offshore marine environment, we are not aware of any particular opportunities presented for enhancement for biodiversity and geological conservation interests*", and whether you agree or disagree with the oLEMP [REP2-010] (paragraph 152).	This quoted part of our response to ExAQ1 2.5 referred to the offshore marine environment. We refer you to paragraphs 1 and 38 of the oLEMP [REP2-010], which explains that the oLEMP relates to the *onshore* elements of the project. To confirm, we are satisfied that the oLEMP secures onshore enhancements with respect to protected species (including great crested newts as explained in our response to Q2.35 above). To clarify, the cited quote was intended to confirm that no opportunities for enhancement in the *offshore* environment have been presented by the Applicant.
2.41	NRW	**HRA** Please confirm whether you agree with the Applicant's assessment that the Proposed Development (alone and in combination with other plans and projects) would not have an adverse effect on the integrity of any European site(s); and in light of the written representation from the RSPB [REP1-090], please explain why you do not consider that the Proposed Development would have implications for the conservation objectives of the Liverpool Bay Special Protection Area (SPA).	(a) NRW (A) confirms that it agrees that the proposed development would not adversely affect the integrity of any Natura 2000 / Ramsar sites, alone or in-combination, for marine ornithology. (b) Displacement of seabirds, both during the construction and operation of offshore windfarms is widely recognised as one of the main impacts on biodiversity and can impact population dynamics (Dierschke *et al.*, 2016; Welcker and Nehls, 2016). Indeed, RTD are considered one of the most sensitive species to the potential displacement effects of offshore wind farms. As detailed in paragraph 2.6.14 of REP1-080, NRW (A) noted that the displacement of RTD in this part of Liverpool Bay SPA is not consistent with what has been observed in other areas of the SPA. For example, the Burbo Bank Extension RTD monitoring programme (HiDef 2020), which demonstrated large-scale RTD displacement by a windfarm located within Liverpool Bay SPA. Given the results of the Applicant's assessment conclusions, and to further investigate if the Awel-y-Môr windfarm might affect the RTD feature of Liverpool Bay SPA, NRW (A) (in conjunction with JNCC) undertook an evidence-based analysis of RTD data both within the Gwynt-y- Môr windfarm, and in buffers around the windfarm boundary (note that the proposed location of Awel-y-Môr is adjacent to, but not within Liverpool Bay

			SPA and therefore the effects of displacement from the buffer of Gwynt-y-Môr windfarm was considered the most relevant evidence to use for analysis, in this case). The numbers of birds at SPA designation (from Visual Aerial Surveys conducted between 2004 and 2011) were compared with numbers of birds post-construction of Gwynt-y- Môr (using HiDef post-construction data from Digital Aerial Surveys conducted between 2015 and 2020), to look for any potential displacement effects from Gwynt-y-Môr alone. Whilst it is possible that this analysis may have underestimated the displacement effect, in the absence of a method to adjust visual aerial data to be more comparable with digital aerial data, NRW (A) nevertheless consider that this is the best available dataset and evidence to undertake analysis of displacement effects. Displacement of RTD would affect the extent of supporting habitat within the site by decreasing the usability of the habitat by the birds. The analysis suggested that numbers of RTD had decreased within the Gwynt-y- Môr windfarm boundary, but it also indicated that numbers increased within a 4km buffer outwith the windfarm. Further interrogation of the data focussed on incremental 1km buffer bands around the windfarm to understand any finer-scale effects. Results indicated minimal difference in the 1km buffer before- and after- construction, and no evidence of displacement beyond this 1km buffer. Furthermore, an increase in RTD numbers was observed in the 2-3km and 3-4km buffers around the windfarm, so it is possible that the displaced birds have moved to this area. As the proposed location of the Awel-y- Môr windfarm is outside of Liverpool Bay SPA, NRW (A) considers that there would be no Adverse Effect on Site Integrity (AEOSI) on the RTD feature of Liverpool SPA if the development goes ahead, based on our analysis of the best available evidence for the area. A separate analysis was undertaken by the Applicant to support their Report to Inform Appropriate Assessment. As the conclusions of the analysis undertaken by the Applicant, and the analysis undertaken by the SNCBs, were comparable, we consider

			that this corroborates the conclusion that there is unlikely to be an AEOSI on the RTD feature of Liverpool Bay SPA from loss of habitat, due to Awel-y- Môr alone and in-combination. It is worth noting that that the observed lack of displacement of RTD in this part of Liverpool Bay SPA is not consistent to that which has been observed in other areas of Liverpool Bay SPA (as well as in other areas of the UK and Europe). Given this anomaly in observation, we continue to advise that comprehensive validation monitoring before, during, and after construction of Awel-y- Môr is needed. The difference in findings between the evidence submitted by the Applicant and, for example, those of the Burbo Bank Extension RTD monitoring programme, clearly demonstrate the continued need to consider proposed windfarm developments within or near Liverpool Bay SPA, on a case-by-case basis. We welcome the Applicants commitment to validation monitoring for RTD as noted in REP2-002 and associated documents. Furthermore, NRW (A) agrees with the Applicant that a comprehensive Vessel Traffic Management Plan is needed, and we acknowledge the Applicant's commitment to this as noted in Condition 34 of the Marine Licence Principles document [REP4-023]. We advise that the VTMP should be agreed in writing. **References** Buckland, S.T., Burt, M.L., Rexstad, E.A., Mellor, M., Williams, A.E. & Woodward, R. (2012) Aerial Surveys of Seabirds: The Advent of Digital Methods. *Journal of Applied Ecology*, vol. 49, pp. 960-967 HiDef (2020) Burbo Bank Extension red-throated diver monitoring programme final report: density modelling of abundance and distribution for surveys in year three (2019 - 2020) Žydelis, R., Dorsch, M., Heinänen, S., Nehls, G. & Weiss, F. (2019) Comparison of Digital Video Surveys with Visual Aerial Surveys for Bird Monitoring at Sea. *Journal of Ornithology*: vol. 160, pp. 567-580

2.42	NRW	**HRA** The Applicant's RIAA [APP-027] excludes likely significant effects from collision-related mortality on Manx shearwater. Please explain why you agree with the Applicant on this point?	As surveys for Awel-y-Môr detected relatively low numbers of Manx Shearwater, and as this as this species typically flies within a few meters of the sea surface (Johnston *et al* 2014), Môr NRW (A) considers that there would not be a likely significant effect on Manx Shearwater as a result of Collision Risk from the project. **References** Johnston, A., Cook, A.S.C.P., Wright, L.J., Humphreys, E.M. and Burton, N.H.K. (2014), Modelling Flight Heights of Marine Birds to more Accurately Assess Collision Risk with Offshore Wind Turbines. *J Appl Ecol*: 51: 31-41.
3. Compulsory Acquisition (CA) and Temporary Possession (TP)			
3.18	Natural Resources Wales (NRW)	**Negotiations** The Applicant's negotiations document [REP3-005] states that protective provisions are not required for NRW (as a statutory undertaker) as Plot 26 has been removed from the Order limits. Please confirm whether you are in agreement with this.	NRW is in agreement with this.
4. Construction			
4.1	DCC, CCBC and NRW	**Staging of Onshore Works** At Deadline 3 the Applicant submitted 'Staging of Onshore Works' [REP3-017] document. Please provide comments in respect of the suitability of the suggested staging approach.	NRW has no comments to make with respect to the staging approach outlined in REP3-017.
4.6	NRW	**Cable Route Crossings** The Applicant confirmed on page 30 of [REP2-002] that the outline Construction Management Plan (oCMS) had been	As explained in section 2.3 of our Deadline 4 submission, NRW has held further discussions with the Applicant, and the Applicant has proposed further updates to the Outline Construction Method Statement [REP4-018] which was submitted to the

		updated to "*clarify that any non-trenchless cable route crossings options or culverted haul road would be closely monitored to quickly identify whether channel deformities were starting to occur so that appropriate action could be taken. The oCMS has also been updated to include potential bank stabilization mitigation and additional information on watercourse crossings*". Noting paragraphs 3.2.2 and 3.8.2 of your Relevant Representation [RR-015] are you satisfied that such amendments alleviate your concerns?	Examination at Deadline 4. NRW can confirm that the updated Outline CMS [REP4-018] addresses NRW's previous concerns as set out in paragraphs 3.3.1 – 3.3.7 (Annex A) of our Deadline 1 submission [REP1-080]. Please also see our response to Q 7.3 below.
7. Flood Risk and Water Quality			
7.2	Applicant, NRW	**Flood Risk Activity Permits (FRAP)** The ExA notes in the onshore SoCG [REP3-021] that the disapplication of FRAP remains an unresolved matter and that NRW does not consent to the disapplication. Please can both parties advise if discussions regarding this issue are ongoing or is this the NRW final position?	As explained in our Deadline 4 submission [REP4-045], we have previously advised the Applicant that the draft DCO should be updated so as to remove Article 7(c) which seeks to disapply the requirement for a FRAP. However, on 25/1/2023, NRW received an email from the Applicant suggesting an additional DCO Requirement provision in seeking to address our concerns regarding the disapplication of the requirement for a FRAP. NRW will consider this information and update the Examining Authority accordingly.
7.3	Applicant, NRW	**Water Quality (Freshwater)** Noting the Applicants response at D3a [REP3a-003] in respect of the WFD and watercourse crossing options, can the **Applicant** and **NRW** please provide an	As explained in section 2.3 of our Deadline 4 submission, NRW has held further discussions with the Applicant, and the Applicant has proposed further updates to the Outline Construction Method Statement [REP4-018] which was submitted to the Examination at Deadline 4.

		update regarding discussions between both parties. Additionally, please can **NRW** advise whether they are satisfied with the suggestion by the Applicant that further information is to be deferred until post-consent '*when it can be prepared on the base of detailed design and further ground investigations*' (row 5, page 11 of [REP3a-003].	The updated Outline CMS includes the following statement: *"The Applicant acknowledges and accepts there is a risk that some watercourse crossing techniques may not be acceptable to NRW following detailed design and further appraisal. Upon further investigation it may be determined that an open-cut solution is not acceptable to NRW and a trenchless crossing option may remain the only acceptable method*". The draft also includes other minor amendments to remove reference to use of gabions/gabion mattresses as engineered reinstatement options. NRW can confirm that the updated Outline CMS [REP4-018] addresses NRW's previous concerns as set out in paragraphs 3.3.1 – 3.3.7 (Annex A) of our Deadline 1 submission [REP1-080].
7.4	NRW	**Flood Consequence Assessment (FCA)** Noting the comment made in Written Representation [REP1-080] regarding the omission of assessment of works located within C2 (as identified in the Development Advice maps in TAN15), the Applicant provided an updated version of the FCA for the Onshore ECC at Deadline 1 [REP1-042]. Please confirm whether you are satisfied with the revised FCA? If not, please give reasons.	We note the updated FCA submitted at Deadline 1 [REP1-042]. As explained in paragraph 3.2.11 of our Deadline 1 submission [REP1-080], NRW is satisfied that flood risk can be appropriately managed.
7.7	Applicant, NRW	**Western Wales River Basin Management Plan 2021-2027** Please confirm whether the updated Western Wales River Basin Management Plan and associated data [REP1-080] has resulted in any changes to the findings of the WFD compliance assessment?	As explained in paragraph 3.3.8 of our REP1-080, NRW is satisfied that the updates to the Western Wales River Basin Management Plan do not affect the overall conclusion with respect to WFD.

12. Marine – Commercial Fisheries, Shipping and Navigation			
12.5	Applicant, NRW	**Commercial Fisheries** Please provide an update on emerging solutions to ecological engineering for cable and scour protection with biodiversity in mind.	For clarity, NRW (A) does not provide advice on the potential impact of project developments on commercial fisheries as this is not part of our statutory remit. Nonetheless, we seek further clarity with respect to the context / direction of this question. We assume that this question relates to the impacts of gear / infrastructure on cables and scour protection, and potentially is seeking a view on whether rock protection could enhance habitats and act as a Fish Aggregation Device for marine fish species. If so and as such, NRW (A) is not aware of any emerging solutions to ecological engineering for cable and scour protection that have biodiversity in mind and that would be appropriate for the potential areas where cable and scour protection might be required in the Awel-y-Môr project. In general, NRW (A) advise that the rock used is as similar as possible to that which would naturally occur in the area where the cable protection is being placed. With regards to the use of frond mattresses, whilst the principal of fronds accreting sediment is generally beneficial, NRW (A) advise that polypropylene frond mattresses should not be used due to the potential for the release of microplastics directly into the benthic environment. NRW (A) are happy to assist the ExA further with responding to this question if the context can be clarified further.

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