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Dear Christopher Butler,

**Planning Act 2008, H2 Teesside Limited, Proposed H2 Teesside Order
Deadline 1 Submission**

On 18 June 2024 the Marine Management Organisation (the “MMO”) received notice under section 56 of the Planning Act 2008 (the “PA 2008”) that the Planning Inspectorate (“PINS”) had accepted an application made by H2 Teesside Limited (the “Applicant”) for determination of a development consent order for the construction, maintenance and operation of the proposed H2 Teesside hydrogen production plant and associated infrastructure (the “DCO Application”) (MMO ref: DCO/2024/00007; PINS ref: EN070009).

The Applicant seeks authorisation for the construction, operation and maintenance of DCO Application, comprising of the construction, operation and decommissioning of an up to 1.2-Gigawatt Thermal (GWth) Lower Heating Value (LHV) Carbon Capture (CC) enabled Hydrogen Production Facility located in Teesside and all associated development (“the “Project”).

The development includes pipeline infrastructure and utility connections. Carbon dioxide (CO₂) captured by the facility will be transported by pipeline to the separately consented Northern Endurance Partnership infrastructure on the adjacent Net Zero Teesside site.

This written representation is submitted without prejudice to any future representation the MMO may make about the DCO Application throughout the examination process. This representation is also submitted without prejudice to any decision the MMO may make on any associated application for consent, permission, approval or any other type of authorisation submitted to the MMO either for the works in the marine area or for any other authorisation relevant to the proposed development.



Yours faithfully,

[Redacted]

Yvonne Golightly
Marine Licensing Case Officer

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1. Comments Relevant Representations from Other Interested Parties

1.1 Environment Agency (EA) (RR-009)

1.1.1 The Environment Agency have raised concerns regarding resilience to climate change and flooding, leading to requests for more adequate considerations within the Flood Risk Assessment.

1.1.2 The MMO notes that the EA have raised a concern regarding whether the crossing at the River Tees is below ground, above ground or both, and that there is reference to both types of crossing in different documents. The MMO would welcome this clarification.

1.1.3 The MMO agrees with EA in that habitats and their functionality with statutory sites should be reviewed. Several of the habitats present within the DCO boundary are potentially functionally linked with the statutory designations. The MMO notes that these are discussed in Section of 6.2.12 Environmental Statement (ES) Vol I Chapter 12 Ecology and Nature [APP-164] but this can be improved with discussion on how they may support qualifying features of these designations, including certain habitats, bird species, and other protected species.

The EA have noted that habitats reported within the varying ES documents contain inconsistencies, such as Coastal and Floodplain Grazing Marsh being of both national importance and district importance. The Outline Biodiversity Management Plan [APP-039] lists Coastal and Floodplain Grazing Marsh but does not discuss it as a separate habitat type or mapped as such in ES Vol I Chapter 12 Ecology and Nature Conservation [APP-064].

The MMO notes that Natural England have also raised concerns regarding functionally linked land. The MMO defer to Natural England for all matters related to HRA.

1.1.4 The MMO notes that EA have raised biosecurity concerns with regards to Invasive Non-Native Species (INNS) and that insufficient information has been provided that fully mitigates against INNS. The EA highlights the risk of either introducing INNS to site or spreading INNS off site, and suggests that there is consideration and assessment of INNS in relation to animals including freshwater invertebrates and amphibians, within the Construction Environmental Management Plan (CEMP).

1.1.5 The MMO agrees that any abstraction from the estuary will need to be compliant with the Eels (England and Wales) Regulations 2009, and may require physical screening, dependent on intake volume and velocity, to avoid entrainment of eels. The MMO defers to the EA as the regulatory body under the Eels (England and Wales) Regulations 2009.

1.2 Historic England (HE) (RR-020)

1.2.1 The MMO notes that Historic England have stated that the impact of this proposal will be minimal on historic sites. Historic England have highlighted that there may be other historic environment issues relevant to Local Authorities, and their conservation and archaeology advisors, who are best equipped to provide advice on these.

1.3 Natural England (NE) (RR-026)

1.3.1 The MMO is aware that there remain unresolved issues that centre around Sites of Special Scientific Interest (SSSI). We note that this includes the following sites:

- Teesmouth & Cleveland Coast Site of Special Scientific Interest (SSSI)

- Lovell Hill Pools SSSI
- North York Moors SSSI
- Saltburn Gill SSSI
- Durham Coast SSSI
- Hart Bog SSSI

The MMO defers to NE on all matters related to SSSI. The MMO will maintain a watching brief for any potential mitigation below MHWS.

1.3.2 The MMO notes that, as the competent authority (Conservation of Habitats and Species Regulations 2017), NE is not satisfied that it can be excluded beyond reasonable scientific doubt that the project would have an adverse effect alone or in combination on the integrity of the:

- Teesmouth and Cleveland Coast Special Protection Area (SPA)/Ramsar
- North York Moors SPA/Special Area of Conservation (SAC)
- Northumbria Coast SPA/Ramsar
- Durham Coast SAC

However, the MMO notes that Natural England is satisfied that adverse effects on integrity of the following Habitats Sites can be excluded following consideration of the scheme's impacts on seals species (grey and harbour) and migratory fish (Atlantic salmon (*Salmo Salar*) and Sea lamprey (*Petromyzon marinus*)):

- The Wash and North Norfolk Coast SAC
- Humber Estuary SAC
- Berwickshire & North Northumberland Coast SAC

The MMO defers to NE on all matters related to HRA. The MMO will maintain a watching brief on these matters and will ensure we are included/are provided updates on any discussions in relation to the HRA. The MMO highlights that any mitigation secured through the HRA will need to be included within the conditions on the DCO.

1.3.3 The MMO notes that NE have requested a condition to be secured for mitigation to further reduce the disturbance effect and impacts on seal movements. This includes noisy activities (piling, drilling, pullback, HDD) must not be carried out at Greatham Creek between the 1st of May and the 31st of September inclusive. NE goes further to request that Noise abatement barriers should be conditioned. The MMO agrees that the applicant should produce a pre-construction and construction seal monitoring plan to be agreed at least 6 months prior to commencing works at Greatham Creek.

1.3.4 The MMO agrees that although direct loss of habitat from the Teesmouth and Cleveland Coast SPA is to be avoided by utilising Horizontal Directional Drilling (HDD), there remains the potential for direct loss of habitat in the event of HDD collapse. This scenario needs to be considered as part of a robust mitigation/management plan.

1.3.5 Natural England have raised concerns regarding impacts on air quality from traffic emissions during construction. Additionally natural England have raised concerns regarding acid and nitrogen deposition and amines from aerial emissions during operation.

- 1.3.6 The MMO notes that NE does not agree with the Applicant's position with regards to offshore ornithology; specifically relating to how the Applicant has ruled out Adverse Effect On Integrity (AEOI) for SPA bird species based on their numbers for each sector. NE have requested that the impacts on individual bird species are assessed for the project site as a whole rather than on a sector-by-sector basis. Additionally, this should be presented for different stages of the project. The MMO defers to NE for matters relating to ornithology.
- 1.3.7 The MMO notes NE's decision to use the 'Red Amber Green' ('RAG') system to denote the level of risk associated with a topic related to this development. The MMO welcomes NE's use of this system and considers it a clear and concise way to present the severity of an outstanding concern.

1.4 Other comments

- 1.4.1 The MMO notes that the Maritime Coastguard Agency (MCA), Trinity House (TH) and the Inshore Fisheries and Conservation Authority (IFCA) have not responded with relevant representation comments. The MMO recommends that the Applicant consults these organisations as they may require maritime notices to be sent prior to undertaking any works, such as the Horizontal Directional Drilling (HDD) under the River Tees, so that impacts to navigation are minimised and that all sea-going personnel are aware of the works for reasons of safety.

2. Environmental Statement

2.1 Summary of Position

- 2.1.1 Some aspects of the proposed development are taking place within the area seaward of the normal tidal limit, namely the construction of the crossing of the River Tees for the proposed hydrogen pipeline, and the crossing of Greatham Creek below Mean High Water Springs (MHWS). The Applicant has proposed that the crossing under the Tees would be constructed using trenchless crossing methodology such as micro-tunnel (MBT) or Horizontal Directional Drill (HDD) or a combination of the two, thereby minimising disturbance during construction. For crossing Greatham Creek the use of HDD is proposed. The Applicant states that a Deemed Marine Licence (DML) is unnecessary for the proposed development, including trenchless crossings of the River Tees and Greatham Creek, since the construction involves bored tunnels entirely beneath the riverbed. As such there are no DMLs included in the DCO application.
- 2.1.2 The MMO added within our Relevant Representation (RR-021) dated 28 June 2024, that we would provide more detailed comments on the ES at Deadline 1, owing to being informed of the submission to the Planning Inspectorate much later than is usual, compared with other Nationally Significant Infrastructure Projects (NSIPs).
- 2.1.3 The applicant is proposing to rely on Article 35 'Bored Tunnels' exemption within The Marine Licensing (Exempted Activities) Order 2011.

Bored tunnels

35.-(1) Article 4 applies to a deposit or works activity carried on wholly under the sea bed in connection with the construction or operation of a bored tunnel.

(2) Paragraph (1) is subject to conditions 1 and 2.

(3) Condition 1 is that notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on.

(4) Condition 2 is that the activity must not significantly adversely affect any part of the environment of the UK marine area or the living resources that it supports.

(5) But article 4 does not apply to any such deposit carried on for the purpose of disposal.

This exemption is subject to conditions, most importantly Condition 2. The conclusion of which can only be drawn during the Examination process.

2.2 Dredge, Disposal and Chemical Use

2.2.1 The MMO would like to highlight the importance of considering the accidental depositing of materials into the River Tees or Estuary as a result of demolition works. The MMO would expect to see more obvious consideration in the ES of the impact on these riverine and estuarine environments, including suitable mitigations in the event of accidental deposition, to minimise any impacts as far as is reasonably practicable. The MMO recommends that the applicant identifies specifically what materials (i.e. brick/rubble, plastics etc.) could accidentally be deposited into the riverine and/or estuarine environment as a result of demolition works, and their potential impacts. The Applicant has confirmed that the pipelines for transporting Hydrogen will not require an entrance or exit within the River Tees, and instead will run directly underneath the riverbed. Therefore, the MMO are content that there will be little to no sediment disturbance from its installation which will be carried out using trenchless techniques such as Horizontal Directional Drilling and/or Micro bored tunnelling beginning and ending on land, above Mean High Water Springs (MHWS).

2.2.2 It is not stated within the ES where the entry and exit points of the tunnels are expected to be in relation to the limits of the marine environment. The Applicant has provided MMO with a map detailing the exact locations of the entry and exit pts, and the MMO is satisfied that these are sufficiently above MHWS. The Summary of Effects chapter indicates that launch pits will be outside the SPA, SSSI and RAMSAR boundaries.

2.3 Coastal Processes

2.3.1 ES Vol I Chapter 5: Construction Programme and Management, Paragraph 5.3.46 states that the crossing of environmentally sensitive watercourses will be via HDD, MBT or Auger Boring and that tunnelling with any of these proposed technologies will be at a minimum of 25 metres (m) depth (and a maximum of 60m). Assessment in Chapter 9: Surface Water, Flood Risk and Water Resources, is apparently conducted on the assumption of 10m depth (paragraph 9.5.22), which is also then quoted as the anticipated depth below Greatham Creek (paragraph 9.5.24). Assuming that these depths refer to depths below the riverbed then this would be sufficient to avoid impacts to marine/coastal processes.

2.3.2 The datum against which the depths are quoted should be confirmed by the Applicant to verify the potential for impact at the estuary bed. This appears to be below the beds of the appropriate watercourses according to Chapter 9: Surface Water, Flood Risk and Water Resources, paragraph 9.5.24.

2.3.3 The quoted paragraph 5.3.46 (in point 2.3.1 above) gives depths below the River Tees only but also indicates crossings at Seal Sands and Greatham Creek, which are not explicitly covered by the statement of depths below the Tees. Confirmation of the constraints on boring depth that apply to all affected sites within their remit is required.

- 2.3.4 The site outline runs up against the landward edges of the currently undeveloped land behind Coatham and Bran Sands (Figure 1 below). This is previously developed land that imposes a restriction on future management of these shorelines, by reducing scope for natural retreat during storms or events. The current summary shoreline management plan approach (Defra, Environment Agency) is to “*Maintain natural development of the shore, to support the nature conservation objectives of internationally important protected sites. Manage residual risk to property and manage dune development through measures which do not impose on the natural system.*”
- 2.3.5 Though there is no present marine impact, this may arise in future depending on the impacts of sea level rise and coastal change. The site boundary is very close to the cliff edge at Bran sands and coastal change over many decades may require protection of the site boundary at some point during the site lifetime. The current location of the designated Ramsar site covers the sands – again, not currently affecting the site boundary, but potentially doing so in future if the sands move landward.
- 2.3.6 The ES discusses the coastal path and landscape and visual amenity of the coastline, but not its coastal process ‘function’ directly. Losses of saltmarsh, floodplain and swamp are assessed as temporary during construction but with no significant permanent impacts. The impacts assessed in Chapter 9: Surface Water, Flood Risk and Water Resources, are on water quality and flood risk, and the hydromorphology of watercourses are included, but not coastal processes. Chapter 19: Climate Change, considers life cycle carbon emissions and its impacts on sea level rise, but not the consequent effects on coastal morphology and shoreline change processes (and management). Geotechnical risk from contaminated made ground is covered under construction risks within Chapter 10: Geology, Hydrogeology and Contaminated Land, but does not appear to discuss any risk from coastal change later in the site lifetime.

The MMO notes that Chapter 9: Surface Water, Flood Risk and Water Resources, paragraph 9.4.161, reports Environment Agency estimates of sea levels for 2125 but this is assessed only for impact on flood risk and not coastal morphology. The ES reports a 25-year site lifespan but is assessed as though longer, and remediation of the site is proposed (9.4.162).

It appears, therefore, that the ES does not treat the coast itself as a receptor and has not assessed the impact of the development on the future coastal processes and resulting condition of the shoreline. The proposed development is likely to maintain its present footprint (and so prevent any associated pollutants or landfill arising from the made ground entering the marine environment) but potentially contribute to coastal squeeze – gradual shrinkage of the area available for a retreating shoreline.

The site lifetime is listed as 25 years, with whatever additional time is required for site life extensions and decommissioning, which may not be long enough for significant changes and shoreline retreat, but the MMO believes the impact should be addressed as a worst-case scenario. Chapter 19: Climate Change, details embedded mitigation for climate impacts including ‘*reinstating habitat lost during construction*’. Impact avoidance could also include allowing space for coastal retreat, something the development prevents, but it is also the case that the water quality impact of the made ground may preclude any potential of roll-back space (unless post-decommissioning remediation could do so).

2.3.7 The ES has considered the combined effects with the (intimately interlinked) other parts of the development e.g., the Net Zero Teesside carbon capture plant - NZT CCUS is considered for impacts on Water Quality (Appendix 9B WQ modelling report) and Marine Ecology. No significant cumulative effects are identified, which is not unreasonable.

2.3.8 ES Chapter 5: Construction Programme and Management, details the risk of drilling fluid break out into the marine environment and details measures during HDD to prevent it. It also lists in paragraph 5.3.89 barges and coastal vessels for the transport and unloading of Abnormal Indivisible Loads, but these will be conducted via established local ports. MMO interpret this to mean there will be no new site-specific marine impacts.

2.4 Benthic Ecology

2.4.1 MMO understand that the commitment to employ trenchless techniques for pipelines crossing the river Tees will avoid the potential for impact to benthic receptors. Providing that the onshore works associated with trenchless technology are conducted such that they also avoid any pathway for impact, the MMO do not have any concerns regarding the proposed construction programme.

2.4.2 ES Chapter 14: Marine Ecology contains an adequate description of the intertidal marine habitats within the study area and is based on review of relevant data sources.

2.4.3 The MMO notes that the cumulative impact from the proposed development and neighbouring projects (specifically Net Zero Teesside Power) is assessed within Chapter 23: Cumulative and Combined Effects.

2.5 Fisheries and Fish Ecology

2.5.1 The Applicant has scoped fish receptors into their assessment and identified fish communities in the Teesside Region (including the River Tees, Tees Estuary, and Greatham Creek) that are characterised by a diverse range of pelagic and demersal fish species, with assemblages typically including Atlantic herring (*Clupea harengus*), Atlantic mackerel (*Scomber scombrus*), Atlantic cod (*Gadus morhua*), whiting (*Merlangius merlangus*), haddock (*Melanogrammus aeglefinus*), European plaice (*Pleuronectes platessa*) and dab (*Limanda limanda*). The Applicant also identifies the river as an important waterbody for diadromous (i.e., migratory) fish species including Atlantic salmon (*Salmo salar*), sea trout (*Salmo trutta*), European eel (*Anguilla anguilla*), river lamprey (*Lampetra fluviatilis*) and sea lamprey (*Petromyzon marinus*). The Applicant states that both salmon and sea trout are also known to spawn in the upper reaches of the River Tees. The Applicant highlights that there are spawning grounds for lemon sole (*Microstomus kitt*) near the Tees, and nursery grounds for the following species: herring, anglerfish (*Lophius piscatorius*), plaice, cod, whiting, spurdog (*Squalus acanthias*), sprat (*Sprattus sprattus*) and lemon sole (Coull *et al.*, 1998; Ellis *et al.*, 2012). The Applicant has also highlighted the peak spawning times for species where spawning grounds overlap with the study area in Table 14-7 within Chapter 14: Marine Ecology. The MMO considers that this is appropriate.

2.5.2 The Applicant has scoped in a series of impacts that have potential to adversely affect fish receptors. The Applicant concludes that the significance of likely effects (with embedded mitigation) is negligible for all scoped in impacts, which is not significant in Environmental Impact Assessment (EIA) terms. The list of impacts scoped in for fish receptors are as follows:

Changes in Marine Water Quality During Construction Activities including Surface Water Runoff.

Changes in Water Quality from Accidental Spills and Vessel Fuels and Oils.

Changes in Visual Stimuli, including from Artificial Lighting.

Introduction, Transportation and Spread of INNS.

Deposition of Airborne Pollutions including Nitrogen.

Nutrient and Chemical Effects from the Dispersion and Discharge of Treated Effluent.

Thermal Effects from Treated Effluent Discharge.

- 2.5.3 The Applicant has scoped out the impact of fish entrapment or entrainment during the abstraction of water. The Applicant states that instead, the proposed development will use water from existing sources, either raw water supply to the South Tees Development Corporation (STDC) site; or a new connection to the existing Northumbrian Water Limited's supply either via tie in to existing infrastructure or the installation of a new connection. Therefore, the Applicant considers no impact pathway to fish from entrainment and mitigation measures are not being considered further. The MMO considers that this is appropriate.
- 2.5.4 The Applicant considers no likely adverse effects to marine ecology receptors to be possible for the decommissioning of the proposed development. This seems appropriate at this stage. However, if any decommissioning works are to be conducted in a marine environment, the MMO recommends a separate marine licence is required so that the potential impacts the decommissioning works may have on fish receptors in the vicinity at that time, can be properly assessed.
- 2.5.5 The Applicant has scoped out the impact pathway for underwater sound associated with the proposed development from further assessment. The Applicant suggests that trenchless technologies, such as HDD, will be used at a minimum depth of 10m below the riverbed at Greatham Creek and at a minimum depth of 25m for the Tees Crossing. As the works will be through bedrock below the marine sediment, and the Applicant concludes that there is unlikely to be a pathway for underwater sound and vibration, arising from pile or drilling activity, to adversely affect marine ecological receptors, i.e. fish. Additionally, the Applicant concludes that although there will be up to 15 vessels required during construction, the underwater sound produced *'is not expected to be greater than the background vessel noise expected to already be occurring in the study area due to the location of Tees Port and the high number of vessels using the port'*, as shown by Automatic Information System (AIS) marine vessel traffic data.
- 2.5.6 The Applicant states in Chapter 14: Marine Ecology, section 3 (Assumptions and Limitations) *'where sound production is above baseline ambient sound levels, as recorded in Section 14.6, activities will have a very short duration in the event of standard operation, each lasting a maximum of 10 weeks (in Greatham Creek)'*. Please can the Applicant confirm if they expect underwater noise to be above baseline conditions, as this comment made by the Applicant is contradictory to one of the Applicant's conclusions highlighted above in point 2.5.4. If the 10-week construction period was to temporally overlap with the 'sensitive' migration seasons of diadromous species, it could cause a barrier when migrating to important spawning grounds further up the Tees, potentially impacting recruitment of the population/species.

- 2.5.7 If all tunnel boring activities were to be carried out at a minimum depth of 10-25m below the riverbed, the MMO would consider the risk of potential impact in terms of underwater sound and vibration on fish receptors to likely be low.
- 2.5.8 The Applicant has scoped out impacts of underwater noise from vessel activity. The MMO agrees that the Tees port experiences regular vessel traffic, therefore underwater noise impacts are likely to be low, for fish species. It should be acknowledged and recognised in the ES that although fish receptors present in the vicinity will likely be habituated, to at least some degree, an increase in vessel activity may have some negative consequences for fish.
- 2.5.9 The Applicant states in Chapter 14: Marine Ecology, section 14.6.5 that '*there is no drilling or piling required in the marine environment*'. Conversely, in section 14.3.36 the Applicant states '*there will be no impact piling in or next to the marine environment, including for the trenchless technologies pit setup and anchors, which will be installed by vibratory sheet piling*'. If the Applicant can confirm that there will be no drilling or piling required (of any kind i.e. vibratory or percussive) in the marine environment, then the MMO has no objections to underwater noise being scoped out of the ES in this instance. However, this statement suggests that some vibratory sheet piling will be required, potentially in a marine environment. If any vibratory piling is required in the marine environment, the MMO recommends that underwater noise impacts are scoped in, and an appropriate assessment is made. The MMO recommends the Applicant informs their assessment for the works by referring to Popper *et al.* (2014) for sound exposure guidelines on noise thresholds for mortality, potential mortal injury and recoverable injury, temporary threshold shift (TTS) and behavioural responses for fish for impulsive noise (e.g. percussive piling) and continuous noise (e.g., vibro piling).
- 2.5.10 The Applicant states that there will be no drilling or piling required in the marine environment, and therefore planned UXO clearance is considered unlikely. If any UXO clearance is required, it must be assessed under a separate marine licence.
- 2.5.11 The Applicant utilises broadscale fish sensitivity maps (Coull *et al.*, 1998; Ellis *et al.*, 2012) to identify spawning and nursery grounds as well as evidence bases from Teal, 2011, Callaway *et al.*, 2002, Environment Agency (EA) 2021a, EA, 2021b, and EA, 2023, to name but a few, to identify the pelagic, demersal and diadromous fish receptors found in the vicinity of the study area. This is an appropriate list of evidence bases and data sources and are those which the MMO would typically recommend for projects of this nature.
- 2.5.12 The Applicant has carried out a desk-based survey using appropriate data sources and evidence bases, see point 2.5.11 above for more detail. The Applicant also undertook fish environmental Deoxyribonucleic acid (eDNA) surveys of freshwater habitats in Spring 2023 in support of their EIA for the proposed works; the results of which are presented in Appendix 12G: Aquatic Ecology Survey Report. The MMO considers this is appropriate.

- 2.5.13 The Applicant has presented their Framework CEMP which includes the requirement for a Water Management Plan (WMP) and other embedded mitigation measures. The Applicant suggests that this document will outline the mitigation measures necessary to avoid, prevent and reduce adverse effects where possible upon the local surface water (and groundwater) environment during construction, including; fine sediment in surface water runoff, the risk of accidental spillages on the proposed development site and the management of construction dewatering. Additionally, for the methodology of the drilling, or other trenchless techniques, the Applicant aims to include measures to minimise the risk of this to the environment, as set out in the Framework CEMP. The Applicant also states that regarding the possibility of breakout (HDD collapse), there are standard measures which are included in the design and performance of the HDD which are considered sufficient to avoid the risk of habitat loss. This is appropriate.
- 2.5.14 The Applicant has presented their cumulative impact assessment in Chapter 23: Cumulative and Combined Effects. The Applicant has applied a 10 kilometre (km) Zone of Influence (Zoi) from the proposed development site boundary to identify adjacent development projects where there is potential for cumulative effects to fish receptors. The Applicant has screened out several other developments within the Zoi as they have no interaction with the marine environment; this is appropriate. The risk of a cumulative impact from accidental spills and/or the introduction and cumulative impact of changes to water quality have not been considered in the Applicant's cumulative impact assessment due to the International Convention for the Prevention of Pollution from Ships (MARPOL Convention 73/78) and other embedded mitigation measures outlined in the framework CEMP. All other impacts outlined above in point 2.5.2. have been screened into the cumulative impact assessment. However, the Applicant concludes that no likely significant cumulative effects between the proposed development and other developments that have been identified, considering the mitigation measures to be implemented.
- 2.5.15 The Applicant has not scoped the impacts of underwater noise into their assessment, and thus neither has the impact been scoped into their cumulative impact assessment. If piling of any sort is to occur in a marine environment, then the MMO recommends the Applicant includes the impact of underwater noise on fish when conducting their cumulative impact assessment.

2.6 Shellfish Ecology

- 2.6.1 The Applicant has used a range of desk-based sources including MMO landing data and existing reference baseline data from other developments within the area. However, there is an absence of data sources identified which will provide data for small inshore vessels (<10m) and artisanal inshore fisheries. The MMO would expect to see data used to cover these areas, for example through consultation with the local IFCA.
- 2.6.2 All impacts have been considered, however, these may need to be reviewed when data on inshore and artisanal fisheries is obtained.
- 2.6.3 There are no mitigation measures proposed in relation to shellfish, this is considered acceptable as shellfish were not assessed as being significantly negatively impacted by the proposed works.

2.7 Underwater Noise

- 2.7.1 As per Section 14.6.3 of Chapter 14: Marine Ecology, the impact pathway for underwater sound associated with the Proposed Development has been scoped out. The reasons for scoping out underwater sound are subsequently given in sections 14.6.4 to 14.6.5.
- 2.7.2 The ES notes that although the use of vessels is proposed, a preliminary estimate indicates that up to 15 vessels may be required during construction of the Proposed Development, subject to finalisation at the design stage. The underwater sound produced by the small number of vessels associated with the Proposed Development, are not expected to be greater than the background vessel noise expected to already be occurring in the Study Area due to the location of Tees Port and the high number of vessels using the port, as shown by AIS Marine Vessel Traffic Data (ABPmer, 2017). Furthermore, it is assumed that vessels are not required in Greatham Creek, due to its narrowness and tidal nature, making it a risky area to work within.
- 2.7.3 The MMO have no objections to the scoping out of underwater noise related to vessel activity in this instance, given Teesport experiences regular vessel traffic. However, it should be acknowledged and recognised in the ES that vessel noise can affect marine receptors. Therefore, an increase in vessel activity may have some negative consequences, although receptors present in the vicinity will likely be habituated, to at least some degree, to vessel related noise.
- 2.7.4 The ES further states that *“there is no drilling or piling required in the marine environment, and therefore planned UXO clearance is considered unlikely. Trenchless technologies such as HDD will be at a minimum depth of 10 m below the bed at Greatham Creek and a minimum 25 m depth for the Tees Crossing, such that there is no pathway for planned activities for underwater sound and vibration effects to marine ecological receptors, as the works will be through bedrock below marine sediment. This is assumed to occur at a sufficient depth where underwater sound and vibration effects to migratory fish are unlikely”* (Chapter 14: Marine Ecology, Section 14.6.5).
- 2.7.5 As stated previously in point 2.5.9, the Applicant should confirm that there will be no drilling or piling required (of any kind) in the marine environment. The Applicant should also confirm this is indeed the case because earlier in Section 14.3.36 of Chapter 14, the ES states that *“there will be no impact piling in or next to the marine environment, including for the trenchless technologies pit setup and anchors, which will be installed by vibratory sheet piling”*. This statement therefore suggests that some vibratory sheet piling will be required. If any vibro-piling is required in the marine environment, then this should be adequately assessed in the ES, and underwater noise should be scoped in.
- 2.7.6 It is stated in Chapter 14: Marine Ecology, Section 14.5.10, that the Hydrogen Pipeline, while being primarily above ground, would cross the River Tees and Greatham Creek (and adjacent water features at Seal Sands) using trenchless technologies. Given the use of trenchless technologies at the stated proposed depths (i.e., a minimum depth of 10 m below the bed at Greatham Creek and a minimum 25 m depth for the Tees Crossing), the MMO agrees that the risk of potential impact in terms of underwater sound and vibration on marine ecological receptors is likely to be low. The Applicant has now provided further information on the actual entry and exit points of the river/creek crossings. The MMO requests the distances away from MHWS, to be able to understand any negative affect for marine receptors.

3. Comments from Issue Specific Hearing (ISH) 1

3.1 Comments

- 3.1.1 The MMO notes that ISH 1 discussed the scope of the development and its relationship to the extent of the Order Limits and progress of development design.
- 3.1.2 The MMO will keep a watching brief on responses from the Applicant relating to concerns raised in Agenda item 4, Progress of the design development.
- 3.1.3 The MMO has reviewed 'The Examining Authority's Written Questions and Requests for Information' (PD-008), specifically Question 1.4.23. The MMO welcomes the Examining Authority's (ExA) request for clarification on the assessment of frac-out risk and whether the applicant will be submitting an Outline Marine and Intertidal Pollution Contingency Plan and Outline Bentonite Management Plan.

The MMO has now received a map detailing the entry and exit pits for the trenchless crossings from the Applicant, and notes that the ExA is seeking the same information (Question 1.15.6). This is attached to Annex 1. Whilst the MMO is content that the pits are above MHWS, we would like to see the distances referenced to the MHWS mark, to understand whether the pits are at a sufficient distance away from marine receptors. The MMO also queries what data set has been used to obtain the MHWS mark.

Yours faithfully,

██████████

Yvonne Golightly
Marine Licensing Case Officer

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