

# REPORT

## **Holyhead Port Expansion - Response to Comments on ES Addendum**

Client: Stena Line Ports Ltd

Reference: PB6108-RHD-ZZ-XX-RP-Z-0005

Status: S0/P01.01

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HASKONINGDHV UK LTD.

Stratus House  
Emperor Way  
Exeter  
EX1 3QS  
Industry & Buildings  
VAT registration number: 792428892

+44 1392 447999 **T**  
+44 1392 446148 **F**  
info.exeter@uk.rhdhv.com **E**  
royalhaskoningdhv.com **W**

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Author(s): Sarah Marjoram

Drafted by: Sarah Marjoram, Dr David Brew, Dr  
Keming Hu

Checked by: Christa Page, Jamie Gardiner

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Approved by: Jamie Gardiner

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# 1 Introduction

## 1.1 Overview

On the 16<sup>th</sup> December 2020, Natural Resources Wales (NRW) shared the comments received on the Holyhead Port Expansion Environmental Statement (ES) Addendum, which was submitted on the 30<sup>th</sup> September 2020 in response to consultation comments received on the Environmental Statement. All responses can be seen in **Appendix A**.

The information provided in the ES and ES Addendum had addressed the majority of comments raised; however, additional comments have been raised by NRW TE, specifically on coastal processes, dredging and disposal application, benthic ecology, marine water and sediment quality, the Water Framework Directive Compliance Assessment (WFD CA), and ornithology. In addition, NRW Marine Licencing Team provided additional comments related to archaeology and Cultural Heritage. This report presents Royal HaskoningDHV and Stena Line's responses to these further comments.

## 1.2 Consultation with NRW

In advance of the submission of this report, consultation was undertaken with NRW specialists to confirm the approach and response to address comments on coastal processes (specifically the sediment dispersion modelling), the WFD CA (specifically on the predicted loss of soft subtidal habitat) and on marine water quality.

A note was submitted to NRW on 12<sup>th</sup> February 2021 to provide further information on the sediment dispersion model's set-up, validation and scenario methodology, in order for NRW to provide further comment on the sediment dispersion modelling and the following environmental assessments:

- Marine and Sediment Water Quality;
- Marine and Coastal Ecology; and,
- Fish and Shellfish Resource.

This note can be seen in **Appendix B**.

A separate note was submitted to NRW's WFD specialists on 17<sup>th</sup> February 2021 to provide further evidence to support the conclusion that the loss of approximately 1.2% of soft subtidal habitat would constitute a temporary impact. This note can be seen in **Appendix C**.

NRW responded to the model set-up note and WFD habitats note on the 8<sup>th</sup> March 2021 expressing their agreement with the approaches detailed (see **Appendix D**).

Consultation was also undertaken, via email correspondence, to confirm the approach to assessing potential impacts to marine water quality using the Environment Agency's new SeDiChem tool. This consultation can be seen in **Appendix E**.

## 2 Response to NRW's Comments on the ES Addendum

The table below sets out the responses to comments received from NRW on the ES Addendum. Where required, further information is presented to supplement the response in the sections below the table.

Table 1 Response to NRW's comments received on the ES Addendum

| Comment                  | NRW Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Response                                                                                 |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <b>Coastal Processes</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                          |
| 1                        | <u>Section 3.2.3 Sediment Plume Dispersion Model</u><br>Limited model set-up, validation and scenario methodology is presented to allow assessment at present, this impacts all receptor sections further on within the ES addendum. It is important to understand the hydrodynamic conditions at the time of the outputs presented and whether during the 15-day model run if there are times of greater SSC spatial extent observed.                                  | Refer to <b>Section 2.1</b> .                                                            |
| 2                        | <u>Section 3.3.1 Coastal Processes</u><br>It is important to understand how the sediment deposition within Holyhead Harbour has been modelled; the so-called 'S-factor'. Relating back to Appendix C3 of the original ES, has the updated dredging and disposal approach changed the assessment?                                                                                                                                                                        |                                                                                          |
| 3                        | <u>Section 3.3.2. Marine and Sediment Water Quality</u><br>Further information about the updated plume dispersion SSC model set-up and scenario runs are required to enable water quality assessment of impacts.                                                                                                                                                                                                                                                        | Refer to <b>Section 2.1</b> . The assessment presented in the ES Addendum remains valid. |
| 4                        | No quantification is provided on the sediment released through construction activities. It is important to understand the residual sediment that will be released into the water column through dredging and what fate that will have, from both the TSHD and BHD the so-called 'S-factor' within the SSC model. It is unclear if the updated dredging and disposal approach has changed the assessment.                                                                | Refer to <b>Section 2.1</b> .                                                            |
| 5                        | The updated modelling methodology at the disposal site has not been presented to allow an assessment of the validation and calibration and accuracy of prediction. The scenarios that have been modelled are also omitted, it is unclear on the tidal and wave state to ensure a worst-case scenario has been considered. Depending on the hydrodynamic conditions at the point of output, the fate of the sediment will be different, justification is required on the | Refer to <b>Section 2.1</b> .                                                            |

| Comment | NRW Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | scenario chosen. Of concern is the fate of the plume on coastal receptors, such as bathing waters, shellfish beds and amenity beaches.                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 6       | Clarification is required over the differences in figure 3-10 (page 25) and 4-10 (page 58), they appear to have the same figure legend however the modelled output and picture is very different.                                                                                                                                                                                                                                                                                           | <p>The legend for Figure 3-10 states "Maximum predicted suspended sediment concentrations for the mid layer at the offshore disposal site." This represents a point in time from the entire disposal schedule and represents movement of sediment up till that point.</p> <p>The legend for Figure 4-10 states "Time series plots showing the dissipation of SSC in the mid-layer within Holyhead North once dredging has ceased (a), 30 mins after last release (b) and 60 minutes after last release (c)." This plot shows the behaviour of the plume during the high water peak ebb tidal flow as during this tidal phase the plume travels the furthest.</p> <p>As can be seen above, the figure legends are different.</p> |
| 7       | <u>Section 3.3.3. Marine and Coastal Ecology</u><br>Further information is required about the updated plume dispersion SSC model set-up and scenario runs are required to enable benthic assessment of impacts.                                                                                                                                                                                                                                                                             | Refer to <b>Section 2.1</b> . The assessment presented in the ES Addendum remains valid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 8       | <u>Section 3.3.4. Fish and Shellfish resources</u><br>Further information is required about the updated plume dispersion SSC model set-up and scenario runs are required to enable fish / shellfish assessment of impacts.                                                                                                                                                                                                                                                                  | Refer to <b>Section 2.1</b> . The assessment presented in the ES Addendum remains valid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 9       | <u>Section 4.2.2. Maintenance Dredging</u><br>It is unclear if information is missing from Table 4-3. However, it can be summarised from the assessment that maintenance dredging requirements would be around 40,000m <sup>3</sup> at the approach channel every 5 years and 24,000m <sup>3</sup> at Pelham Patch every year. The amounts are lower than anticipated and therefore we agree to no significant change in the locality due to substantial dredging needs or beach draw down. | No comment required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Comment                                | NRW Comment                                                                                                                                                                                                                                                              | Response                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10                                     | <p><u>4.3.2 Time Series Plots</u></p> <p>We are unable to comment on the time series plots until we can understand the scenarios that have been run and the point of output within the model.</p>                                                                        | <p>Refer to <b>Section 2.1</b> for details of the scenario run.</p> <p>The point of output within the approach channel footprint is provided in the adjacent image and is at the northernmost point of the dredge footprint.</p> <p>The point of output within the disposal site is the centre of the site.</p>                   |
| 11                                     | <p><u>Cumulative Impact Assessment</u></p> <p>Project changes have been made to the Holyhead Waterfront regeneration scheme and updated information presented, we recommend this is considered within cumulative impacts to ensure there are no compounding factors.</p> | <p>It is understood that an updated Scoping Report has been submitted in relation to the Holyhead Waterfront Development, however detailed information on the project and its potential impacts is not yet available to allow a cumulative assessment. Therefore, the Holyhead Waterfront Development project will consider the cumulative impacts of the two projects once the project description is confirmed.</p> |
| <b>Dredge and Disposal application</b> |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 12                                     | <p><u>9. Duration of Dredging and/or Disposal Operation</u></p> <p>The marine license has a timescale: 'Dredging and disposal activities are anticipated to occur over a period of 4 months spread over within a 1-year period commencing from January 2022.'</p>        | <p>The assessments undertaken throughout the ES Addendum considered a 15-week dredging and disposal programme. Table 3-12 of ES Addendum shows a 15-week dredging programme however, the units were not provided in the table.</p>                                                                                                                                                                                    |

| Comment                | NRW Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | The applied timescale is different to what has been assessed within the ES addendum, with dredge and disposal occurring over 15 days. From a physical process perspective this is not an issue, however, it may impact other receptors, and restrictions on timing may be needed depending on the outcome of the modelling and WQ discussions.                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 13                     | <u>10. Dredging and/or Disposal Vessel(s) Details</u><br>The application states a Cutter Suction Dredger (CSD) may be used, however this has not been assessed within the ES. Clarification is sought as to whether the worst-case scenario has been investigated in terms of dredge release during construction.                                                                                                                                                                                                                                          | The ES and ES Addendum assessed TSHD as the worst-case scenario. It is stated in Section 3.2.4 of the ES that<br><i>"The instantaneous impact of this type of dredger [the CSD] is considered to be lower than a TSHD and therefore a TSHD has been assessed as the worst-case scenario."</i><br>TSHD is considered to be the worst-case scenario for sediment release (Dearnaley <i>et al.</i> 1996, and van Rijn, 2019).                                                                                           |
| 14                     | <u>11. Method statement for dredging and/or disposal operations (if applicable)</u><br>In this section it states that CSD has been discounted due to needing to re-use material in land reclamation. The method has now changed and we would recommend the section was updated and CSD assessed if it is now being proposed.                                                                                                                                                                                                                               | Section 11 of the dredge and disposal application does not state that CSD has been discounted. The section states:<br><i>"Cutter suction dredging (CSD) has been considered, however the use of this method would limit the re-use of the dredged material in the reclamation areas."</i><br>In Section 10 of the dredge and disposal application CSD is included as one of the types of dredgers that may be used.<br>As stated in response to Comment 13 above, TSHD has been assessed as the worst case scenario. |
| 15                     | <u>13. Details of Material to be Dredged and/or Disposed</u><br>In the table, the quantities are listed as to be dredged each year – a note should be made that this is a one-off capital dredge.                                                                                                                                                                                                                                                                                                                                                          | We confirm that the volumes provided in Section 13 of the application relate to a one-off capital dredge.                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Benthic Ecology</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 16                     | <u>3.3.3.1 Smothering of benthic habitats and species as a result of the dredging works</u><br>Given the revised methodology and subsequent changes in the assessment and modelling outputs, there appears to be limited impact pathways on intertidal or subtidal benthic habitats as a result of smothering from the dredge works at the Port of Holyhead. This assumption is subject to modelling and water quality concerns being addressed and agreed by the relevant NRW physical specialists. See also physical process and water quality comments. | It is considered that concerns raised by NRW specialists on physical processes and water quality have been addressed. As such the benthic ecology assessment presented in the ES Addendum remains valid.                                                                                                                                                                                                                                                                                                             |
| 17                     | <u>3.3.3.2 Smothering of benthic habitats and species at the disposal site</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Disposal of dredged material would not occur in a single location. This scenario was just used to provide a worst-case scenario for assessment                                                                                                                                                                                                                                                                                                                                                                       |

| Comment                                  | NRW Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          | <p>We note the revisions to sediment type volumes (Table 3-1) contained in the ES Addendum as well as the inclusion of mitigation measures to micro-site the disposal of 'rock' to avoid impact on Annex 1/Section 7/OSPAR sensitive habitats at the disposal site.</p> <p>The approach to micro-siting disposal of material is welcomed. However, it is likely that the disposal of 'firm clays' and 'gravels' in the volumes and timescales specified will also have an adverse effect on sensitive habitats at this location. Therefore, we advise that the micro-siting of firm clays and gravels (as well as rock) should be undertaken which would provide confidence that all measures to avoid impact on sensitive Annex 1/Section 7/OSPAR habitats are being taken.</p> <p>Furthermore, and in relation to ensuring that the worst-case scenario presented in Figure 3-4 is avoided, particularly in relation to the deposition of fine material, we advise the inclusion of a ML condition ensuring that deposition of material across the disposal site is uniform as far as reasonably possible, and not concentrated in a few locations. This uniform distribution should be presented as a modelled output so as to make further predictions about changes in bed level.</p> <p><i>Sabellaria spinulosa</i> is resilient to some amount of smothering for a certain time period. However, under the worst-case scenario i.e. over 10m bed level change, adverse impact to this habitat would be sustained. The applicant should demonstrate how impact to this habitat can be avoided through a varied disposal plan and/or micro-siting.</p> <p>Some post disposal monitoring would also be advised to ascertain bed level change and reaffirm the assumption of the ES.</p> | <p>purposes. The disposal locations would be informed by the micro siting exercise, as well as the need to spread the material over the site as much as practicable.</p> <p>Given the requirement for micro-siting, it will be impossible to ensure a uniform deposition of sediment across the site, and therefore further modelling is considered unnecessary.</p> <p>Rather, it is proposed that following the micro-siting exercise, a disposal plan is produced that confirms the disposal locations. Bathymetry surveys would be undertaken during the disposal programme to ensure that sediment does not exceed agreed depths.</p> <p>It is suggested that a dredge disposal plan is included with the CEMP to be produced and agreed by NRW.</p> |
| <b>Marine Water and Sediment Quality</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 18                                       | <p><u>Section 3.3.2 of the ES Addendum and Chapter 9 of the original ES</u></p> <p>Impact pathways related to marine water and sediment quality are focused toward potential increases in suspended sediment concentrations (SSC). Table 3.1 of the ES Addendum (p5) notes the revised total dredge volume is 2,015,354 m3. Over a 15 week dredging programme, this will be quite intensive. Potential issues related to sediment-bound contaminants in dredge material are largely dismissed due to the results of chemical analysis from samples collected from the proposed dredge areas. While it is acknowledged that the risk is small, high SSCs are predicted due to capital dredging and, therefore, it should be demonstrated that contaminant partitioning from suspended sediment (i.e. sediment-bound to dissolved in the water column) will not result in an issue to water quality. Potential uplift should be compared to respective Environmental Quality Standards (EQS).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Refer to <b>Section 2.2</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Comment | NRW Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19      | <p>Section 3.3.3.1 of the ES Addendum (p19) notes "...dewatering of the reclamation areas would no longer occur". This is also noted elsewhere in the document as a result of infill material being imported from marine aggregate resources (Table 4.6). However, we anticipate that some dewatering would still be required. We also note that no assessment of potential impacts to marine water and sediment quality from other construction discharges/surface water run-off has been identified. This is an omission.</p> | <p>Some dewatering of the reclamation areas would be required; however, the aggregate to be used as the reclamations will originate from a licenced offshore aggregate extraction site and, as required by the engineering design, will comprise coarse sand with minimal fines. Dewatering would therefore not create significant increases in suspended sediment concentrations (SSCs), which would be well below that created, and assessed, during the dredging activity.</p> <p>Potential impacts to marine water and sediment quality from other construction discharges/surface water run-off would be avoided/mitigated as the works will be undertaken in accordance with NRW's GPP5. A CEMP will also be produced and agreed with NRW, which will detail all measures to protect the marine environment. Because of these built-in scheme control measures the WFD CA scopes out this potential impact. Therefore, is it considered that further impact assessment is not required.</p> |
| 20      | <p>Section 4.3.2 of ES Addendum (p48) states "Time series plots have been produced to illustrate the dissipation of SSC following the cessation of dredging and disposal activities". It is not clear from Figure 4.9 (p49) where dredging activity has occurred prior to this plot. Clarification is sought.</p>                                                                                                                                                                                                               | <p>The final dredging location prior to the plot is at the northern edge of the approach channel (shown in the figure provided in response to Comment 10 above).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 21      | <p>Section 4.3.2 of ES Addendum (p50-51) - Time-series plots of SSC dissipation (Fig 4.10 and 4.11) show the plume in the mid-layer moving south following cessation of dredging, well outside of the Holyhead North disposal site boundary. Clarification is sought on the fate of the plume. We recommend that bathing waters and shellfish waters are included and assessed in relation to the plume along with wastewater and contaminants.</p>                                                                             | <p>Refer to <b>Section 2.3</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 22      | <p>Section 3.3.3 of the original ES (p35), supported by Figures 3.12 and 3.13 (p36-37), describes the proposed new drainage arrangement for the two land reclamations. No assessment of the potential impacts to marine water and sediment quality has been provided for surface water/operational discharges.</p>                                                                                                                                                                                                              | <p>The surface water drainage requirements for the new reclamation areas are not considered to change in comparison to the current situation. As stated in the ES, the drainage system will be equipped with interceptors to prevent any potential oil contaminants entering the marine environment and as such potential impacts to marine water quality are considered to be negligible.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 23      | <p>Section 3.3.4 of the original ES (p38) states "There will be no change in the operational waste generated by the Port and waste management for the proposed scheme would be covered by the Port's existing waste management procedures". However, Section 23.5.1 of the original ES (p556) indicates that "the expansion is expected to generate over 13,000 jobs</p>                                                                                                                                                        | <p>It should be noted that the expected job creation relates to the Anglesey economy as a whole, and only a very small proportion of this directly applies to the Port. The proposed scheme provides an alternative cruise berth, given the existing one will soon become unusable, and load on</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Comment       | NRW Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | <p>to the Anglesey local economy (Blue Chip Tourism)". This increase is anticipated to result in an uplift in wastewater arising on the port estate, both as a result of cruise passengers and increased employment. The applicant is directed to the following Scoping Opinion comment: "Whist consideration has been given to the inert waste arising from dredging; there is no consideration to other waste sources or quantities that may arise from the development either during construction or during operation". Further detail and assessment is required.</p> <p><u>Section 9.4.4 of original ES (p160)</u> noted that "The Port has an Oil Spill Contingency Plan (Stena Line Ports Ltd, 2017) which will be followed in times of a pollution event. As sufficient measures are in place to respond to a pollution event during the construction and operation of the proposed scheme, the risk of a significant effect is low. Given the control measures to be put in place this is not considered further in this section". The Holyhead North disposal site appears to be situated outside of the Area of Operation identified. Clarification is sought as to whether the Oil Spill Contingency Plan incorporates pollution risk during disposal activities. Potential impacts during disposal activities, from both capital and maintenance dredging, should be included to enable an assessment of marine water quality.</p> | <p>load off facilities. It therefore provides a continuation to an existing cruise service that would have grown by the same rate, should the berth have remained on Orthios Jetty. As such, any changes in operational waste is in line with the ports existing operations and covered by their current waste management procedures.</p> <p>During construction, waste will be managed by a site waste management plan, as presented in a CEMP to be approved by NRW.</p> <p>Stena Line's Oil Spill Contingency Plan does not extend to the disposal site. Activities at the disposal site would be managed by the dredging contractor who are required to have procedures in place and facilities on board to deal with a spill should one occur. All vessels must produce a Shipboard Oil Pollution Emergency Plan in accordance with the requirements of regulation 37 of Annex I of the International Convention for the Prevention of Pollution from Ships 1973, as amended by the Protocol of 1978. The plans are approved by the Maritime and Coastguard Agency and follow guidelines published by the International Maritime Organisation. These measures will be presented in a CEMP to be approved by NRW.</p> <p>Maintenance dredging will be covered by a variation to the current maintenance dredge licence, with risks to marine water quality managed accordingly.</p> |
| <b>WFD CA</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 24            | <p><u>Section 25.1 of original ES (p590)</u> states "The WFD is transposed into national law by means of the Water Environment (WFD) (England and Wales) Regulations 2017". While the UK left the EU on 31 January 2020, the UK continues to be committed to meeting high environmental standards. The main provisions of the WFD have been retained in English and Welsh law through the Floods and Water (Amendment etc.) (EU Exit) Regulations 2019.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Noted, this is acknowledged. No further response required.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 25            | <p><u>Section 25.2.2 of original ES (p591)</u> states "The Holyhead North disposal site is not located within a WFD water body (Figure 25.1). Additionally, the results of sediment dispersion modelling (discussed in Chapter 8 and [sic] 0) indicate that the sediment plume would be limited to within and only slightly outside the boundary of the disposal site and therefore would not extend into a WFD waterbody. As such the disposal activity is not considered</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Refer to <b>Section 2.3</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Comment | NRW Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Response                      |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|         | further in this assessment". Time-series plots of SSC dissipation (Fig 4.10 and 4.11) show the plume in the mid-layer moving south following cessation of dredging, well outside of the Holyhead North disposal site boundary. Clarification is sought on potential interaction of the plume with the Caernarfon Bay North coastal water body.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                               |
| 26      | The Holyhead Bay coastal water body is currently (2018) classified as failing chemical status, specifically the parameters Fluoranthene, Benzo(a)pyrene, Mercury and its compounds and Trichlorobenzene. With the above WFD classification in mind, it is necessary to demonstrate the scale of any uplift during the proposed activities. It may be possible to show that the predicted uplift in contaminant levels, in particular those currently failing to achieve good, in the water column would be so small (and short-lived) to result in no discernible change at the water body level. This could use the maximum contaminant concentration in the dredge material, predicted increased SSCs and partition coefficients to estimate the increase in dissolved concentrations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Refer to <b>Section 2.2</b> . |
| 27      | <p><u>Section 4.14.2.</u></p> <p>We do not agree that the proposed 1.2% loss of habitat would constitute a "temporary impact" as no evidence of this is provided. We remain in agreement with previous NRW advice stating that this be classed as habitat loss under the WFD. No evidence is provided that recolonisation would occur, and it is likely that opportunistic species would recolonise, meaning an irreversible loss of diversity of the water body. A loss of diversity would constitute deterioration in the biological elements of the water body.</p> <p>As the physical footprint of the activity is greater than 1%, a further WFD compliance assessment is required to ensure the Holyhead Bay coastal water body does not deteriorate or is not prevented from achieving Good Ecological Status. We require evidence of the percent of deterioration/habitat loss that would occur. Benthic invertebrates are already a vulnerable element in this water body and are currently (2015) failing, and so should be included in the detailed assessment as well as habitat, and further evidence of recolonisation (if any) is sought. Please refer to OGN72: Guidance for assessing activities and projects for compliance with the Water Framework Directive, specifically sections: 4. Detailed Compliance Assessment (p.17), 3.3.1. Hydromorphology – reference to the 1% threshold (p.13), 4.1.1. Temporary works – specifically: "If the water body does not recover to the same status as before the activity started then the activity should not be treated as temporary" (p.19), and 4.7 Application of Article 4.7 if necessary.</p> | Refer to <b>Section 2.4</b> . |

| Comment                                  | NRW Comment                                                                                                                                                                                                                                                                                                                                                                                                                                      | Response                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ornithology</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                          | You will note that both NRW TE and LPA have provided comment and consider that mitigation measures for Black Guillemots is necessary. From review of the ES (specifically Chapter 15 page 297) it appears that you are proposing that nest boxes will be installed before works begin, in addition to pre-construction survey and surveys of nesting black guillemots during construction. Could you please confirm my understanding is correct. | Yes, this is correct.                                                                                                                                                                                                                                                                                                                                                                              |
|                                          | In addition I note from Table 4-11 of the ES addendum Ref ORN2 that proposed mitigation in relation nesting birds is proposed to be incorporated into the Construction Environment Management Plan for the site. Please confirm whether mitigation measure relating to Black Guillemots are proposed to be incorporated into the same document.                                                                                                  | Yes, mitigation measures for black guillemot will be incorporated into the CEMP.                                                                                                                                                                                                                                                                                                                   |
| <b>Archaeology and Cultural Heritage</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                    |
| 28                                       | Section 4.10.1 of the ES addendum details that further consultation was undertaken with IoACC and Cadw to confirm the mitigation required. However, the correspondence presented within the appendix appears to be between IoACC only. Could you please clarify.                                                                                                                                                                                 | This statement is not accurate – Cadw were not consulted on the requirement for further mitigation. In an email of the 2 <sup>nd</sup> July 2019 from Nichola Davies, Cadw had confirmed that Cadw is not a consultee on listed building consent applications and that this should be dealt with the relevant local authority, hence further consultation on this issue was sought with the IoACC. |
| 29                                       | Reference is made within appendix to the ES addendum and within IoACC response to Additional mitigation. This is proposed in relation to cultural heritage within the ES addendum. Please can you confirm that the additional mitigation referred to is that referenced within section 4.10.2 of the ES addendum                                                                                                                                 | We can confirm that the additional mitigation referred to is that provided in Section 4.10.2 of the ES Addendum.                                                                                                                                                                                                                                                                                   |
| 30                                       | I would draw your attention to the response received from Gwynedd Archaeological Trust which sets out proposed requirement for the work. Please provide any comment you may have on these requirements.                                                                                                                                                                                                                                          | We have no comment.                                                                                                                                                                                                                                                                                                                                                                                |
| 31                                       | Additionally, it would assist to understand if a listed building consent has been applied for.                                                                                                                                                                                                                                                                                                                                                   | Listed Building Consent will be applied for post-consent.                                                                                                                                                                                                                                                                                                                                          |
| 32                                       | I would also draw your attention to advise received from Gwynedd Archaeological Trust Response that relevant archaeological assessments should be shared with regional Historic Environment Record (HER) and National Monuments Record of Wales where relevant.                                                                                                                                                                                  | We acknowledge the requirement to share the relevant archaeological assessments with the HER. Information is proposed to be shared with HER as part of an archive at the end of the project.                                                                                                                                                                                                       |

## 2.1 Sediment Plume Dispersion Model: set up and scenario methodology

The following text was submitted to NRW on the 15<sup>th</sup> February 2021 (see **Appendix B**) and has been agreed with NRW (see **Appendix D**).

### 2.1.1 Model set up and scenario methodology

The sediment plume dispersion model built in MIKE3-MT is coupled with the 3D hydrodynamic model built in MIKE3-HD. The hydrodynamic model has been calibrated and validated against measured tidal elevation and ADCP data, which is described in the Holyhead Port Expansion EIA – Hydrodynamic Modelling Report (see Appendix C2 of the ES). The computational mesh of the MIKE3-MT model is identical to the MIKE3-HD mesh described in the Holyhead Port Expansion EIA – Hydrodynamic Modelling Report (see Appendix C2 of the ES).

The key settings of the sediment plume dispersion model are:

1. critical bed shear stress and sediment fall velocity;
2. dispersion setting and parameters; and,
3. wave condition.

The adopted critical bed shear stress and sediment fall velocity are presented in Table 3.2 of the Holyhead Port Expansion EIA – Sediment Dispersion Modelling Report (see Appendix C3 of the ES). Those values were calculated using SandCal software developed by HR Wallingford based on the Soulsby and Whitehouse method (1997).

For horizontal dispersion, we adopted the Smagorinsky formulation, which is widely used for large-scale coastal modelling. For vertical dispersion, we adopted a constant dispersion coefficient of  $0.01\text{m}^2/\text{s}$ , a typical dispersion coefficient for coastal water set as the default value of the MIKE3 software.

As stated in Section 3.2.3.1 of the ES Addendum, wave effects have been included in the model as an additional force, simulated using a MIKE21-SW spectral wave model coupled with the MIKE3-MT model. A 1 in 1-year wave condition was included as part of the worst-case scenario. A 1 in 1-year wave condition is considered to be the upper limit wave condition for dredging and disposal operations.

There is only one scenario simulated, i.e. the entire dredging and disposal schedule (i.e. 15 weeks) (see Table 3-12 of the ES Addendum), which was determined to be the realistic worst case for the proposed dredging and disposal activities as this creates a continuous input of suspended sediment at the dredge and disposal sites. As such, no other dredging and disposal activity scenarios were modelled. The maximum values at any time during the 15-week simulation, and hence the greatest spatial extent of suspended sediment concentrations, were captured from the model and presented in the ES Addendum to support the assessment.

### 2.1.2 The “S-Factor”

We used the same “S-Factor” as stated in Appendix C3 of the ES. The sediment release rate was calculated from dredging production rates and the “S-Factor”. **Table 2** below presents the adopted “S-Factor”, dredging production rates and sediment release rates (as presented in Appendix C3 of the ES). TSHD (inside) refers to dredging activity undertaken at the Pelham Patch berth and TSHD (outside) refers

to dredging undertaken within the approach channel. These distinctions were made due to the differing sediment composition at the two sites, however it can be seen that the production rates are the same.

*Table 2 Adopted "S-Factor", dredging production rates and sediment release rates*

|                                                      | Backhoe (soft) | Backhoe (hard) | TSHD (Pelham Patch Berth) | TSHD (Approach Channel) |
|------------------------------------------------------|----------------|----------------|---------------------------|-------------------------|
| Sediment loss rate ("S-Factor") (kg/m <sup>3</sup> ) | 25.0           | 25.0           | 15.0                      | 15.0                    |
| Dredging production rates (m <sup>3</sup> /hr)       | 735            | 336            | 1,220                     | 1,220                   |
| Sediment release rates during dredging (kg/s)        | 5.10           | 2.34           | 5.08                      | 5.08                    |

## 2.2 SeDiChem Results

### 2.2.1 Overview

The updated assessment on potential impacts to marine water quality presented in this section uses the Environment Agency's SeDiChem spreadsheet assessment tool (referred to through the subsequent sections as the 'tool'), which is designed to provide a simple quantitative assessment of potential sediment disturbance on water quality in the context of Environmental Quality Standards (EQS) values (Environment Agency 2019). The use of this tool was agreed with NRW prior to commencement of the assessment via email on the 16<sup>th</sup> February 2021 (see **Appendix D**).

The tool uses the predicted SSC released as a result of the proposed dredge to define the scale of water quality effects. To do this, it requires baseline water quality data for the water body, sediment quality data gathered to inform the project and modelled SSC to show whether an exceedance of the EQS within the water body could occur.

It should be noted that the tool investigates a subset of WFD Specific Pollutants, Priority Substances and Priority Hazardous Substances, which have been selected on the basis of having defined water quality EQS values, as well as being amongst the suite of chemicals routinely required for marine licence applications. Consequently, the parameters considered were:

- Metals - arsenic, cadmium, chromium, copper, lead, nickel, mercury and zinc.
- Polycyclic Aromatic Hydrocarbons (PAHs) – benzo[a]pyrene, benzo[b]fluoranthene, benzo[g-h-i]perylene, benzo[k]fluoranthene and fluoranthene.
- Organotins (tributyltin (TBT)).

### 2.2.2 Mechanism of assessment

The tool characterises multiple transfers of chemicals from sediment to water which cumulatively determine the predicted concentration in the water column. The principal contributions are derived from:

- estimation of chemical load contributed by released pore water;
- estimation of chemical load associated with disturbed sediment partitioning (once sediments disturbed into the water column);
- incorporation of background aqueous concentrations; and,
- where applicable, incorporation of the chemical load that remains associated with (e.g. adhered to) those sediment particles that are disturbed into the water column.

The resultant predicted aqueous concentration is then compared against the relevant EQS value.

With respect to metals, the risks to water quality relating to sediment disturbance activities primarily derive from the potential shift of chemicals from the particulate state into the dissolved state (i.e. dissolved concentrations in the sample). For organic chemicals, the partition equilibrium of organic species is defined using the dissolved concentration and the concentration bound to the organic matter, given the strong tendency for sorption to organic matter for hydrophobic species (i.e. the unfiltered total fraction). The tool assessment process is therefore different for each type of parameter.

### 2.2.3 Input data

A data request was submitted to NRW on the 17<sup>th</sup> February 2021 for water quality data within the Holyhead Bay coastal water body. Data received on the 3<sup>rd</sup> March 2021 (covering the period from 2013 to 2015) contained concentrations of heavy metals and TBT. Water quality data for PAHs was not available (NRW pers. comm., 2021).

As required in the SeDiChem spreadsheet, heavy metal and TBT water quality values were averaged for each contaminant from the Holyhead Bay Stag Rock water quality monitoring point to input to the tool. This water quality monitoring point was chosen as it is located the closest to the capital dredge footprint (see **Figure 1**). The mean, maximum and minimum values for contaminants detected within vibrocore sediment samples taken between the 9<sup>th</sup> and 10<sup>th</sup> of August 2018 to inform the ES, were also used.

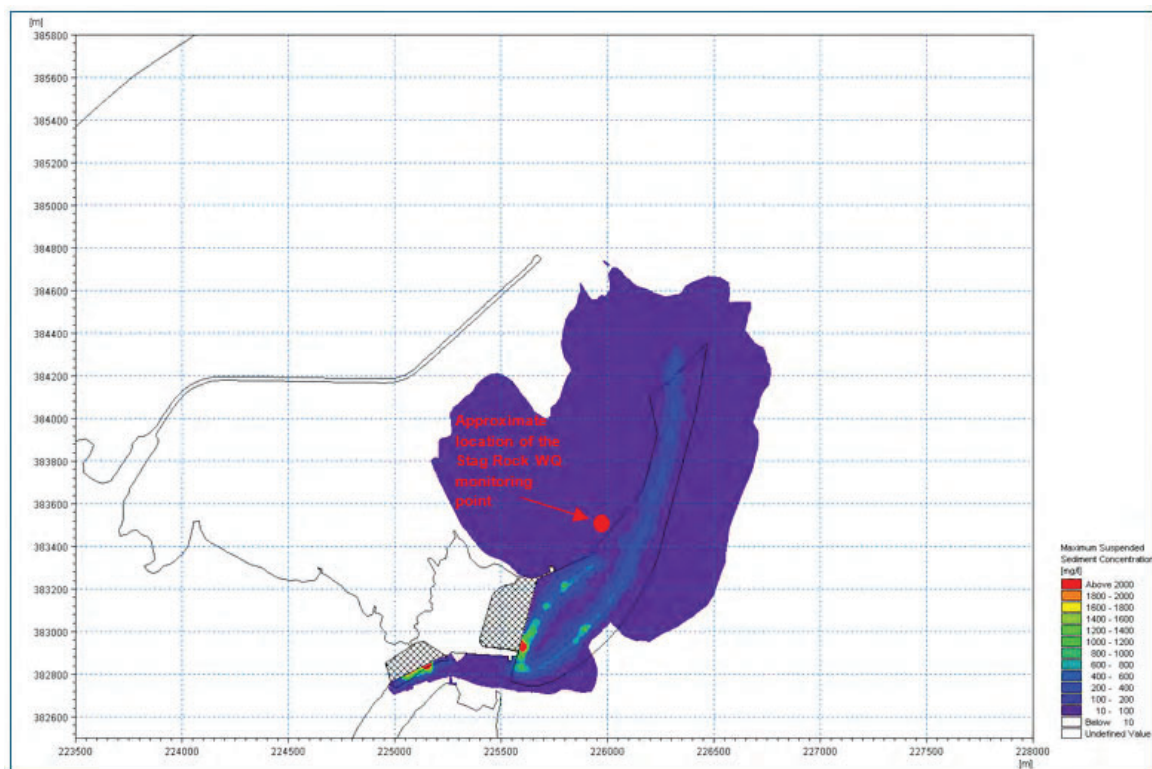


Figure 1 Maximum suspended sediment concentrations (mg/l) at the surface

The tool also requires the 'net flow rate' or 'net tidal flux' rate for the water body which is used for dilution and mass-balance loading calculations which represent the net water movement past the sediment disturbance site per day. This was calculated using the same 3D numerical model as was used for the hydrodynamic and sediment dispersion modelling presented in the ES. The tidal flow throughout the tidal cycle was calculated over a line drawn between the end of Holyhead Breakwater and the opposite coast (**Figure 2**). This provided a net flow rate of 60,480,000m<sup>3</sup>/day.

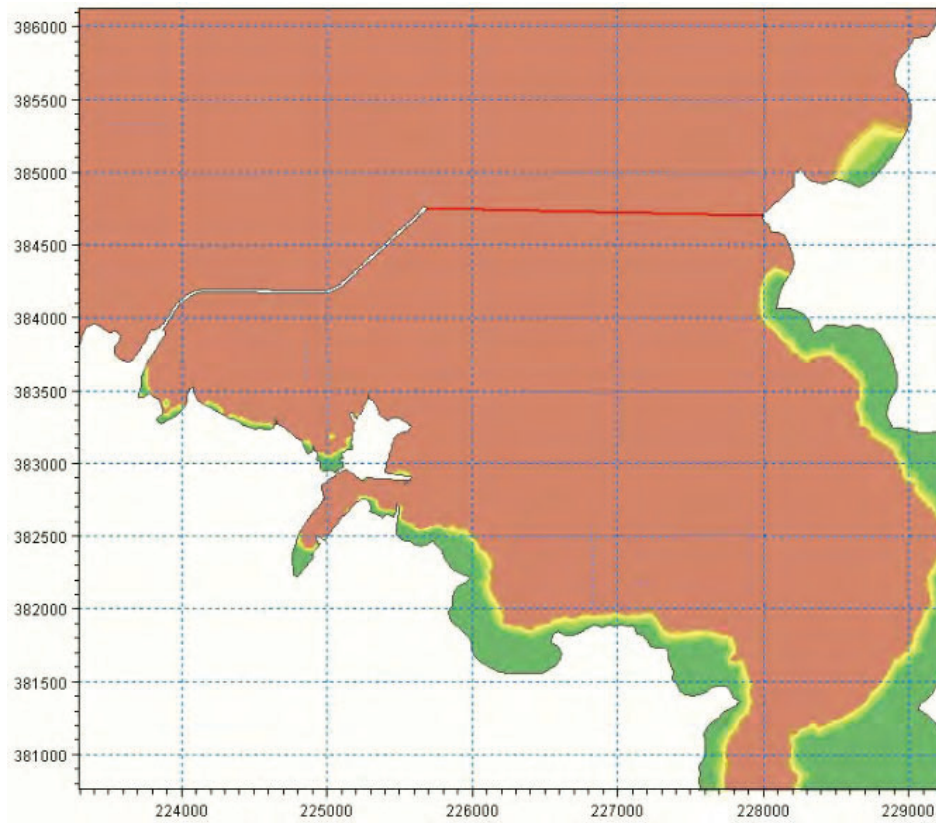


Figure 2 Line over which the net flow rate for Holyhead Bay water body has been calculated (red line)

Finally, the SSC data from the 3D model was extracted from the same location as the Stag Rock water quality monitoring point (Easting: 225999, Northing: 383502) (location indicated on **Figure 1**). **Figure 1** also shows a point in time extracted from the model as the maximum SSC experienced over the whole dredge campaign and therefore indicates a zone of influence rather than predicted real time SSCs. It should be noted that even when showing max SSC, only a small area is predicted to experience very high SSCs which dissipate to less than 100mg/l within 50m of the dredger path.

To provide a clearer understanding of real time SSCs, **Figure 3** presents the modelled SSC data from the Stag Rock monitoring point as a time series. This provides additional information regarding the behaviour of the plume and shows that in reality the maximum SSCs shown in **Figure 2** are not continuous and are very short-lived. Peaks in SSC are experienced when the dredger passes close to the monitoring point and then reduce to within background levels within 30 minutes following cessation of the dredging activity, when the dredger is sailing to the disposal site. As requested by NRW in their email of the 8<sup>th</sup> March 2021, further time series plots from within the dredger path are presented in **Appendix F** to provide further understanding of the temporary nature of the peaks in SSC.

The predicted peak SSC value at the monitoring point is 127mg/l, however SSCs above 100mg/l only last for a total of 10 minutes over the length of dredging activity (15 weeks) (**Figure 3**). For the majority of the dredge campaign, SSCs are therefore predicted to be within baseline levels (5.9mg/l, ES Appendix D) and the average increase in SSC experienced at the monitoring point over the length of the dredging activity is only 0.57mg/l.

To run the tool, a SSC of 50mg/l was used to reflect an approximate average of the peak concentrations experienced at this location which significantly exceed baseline concentrations, as shown in **Figure 3**.

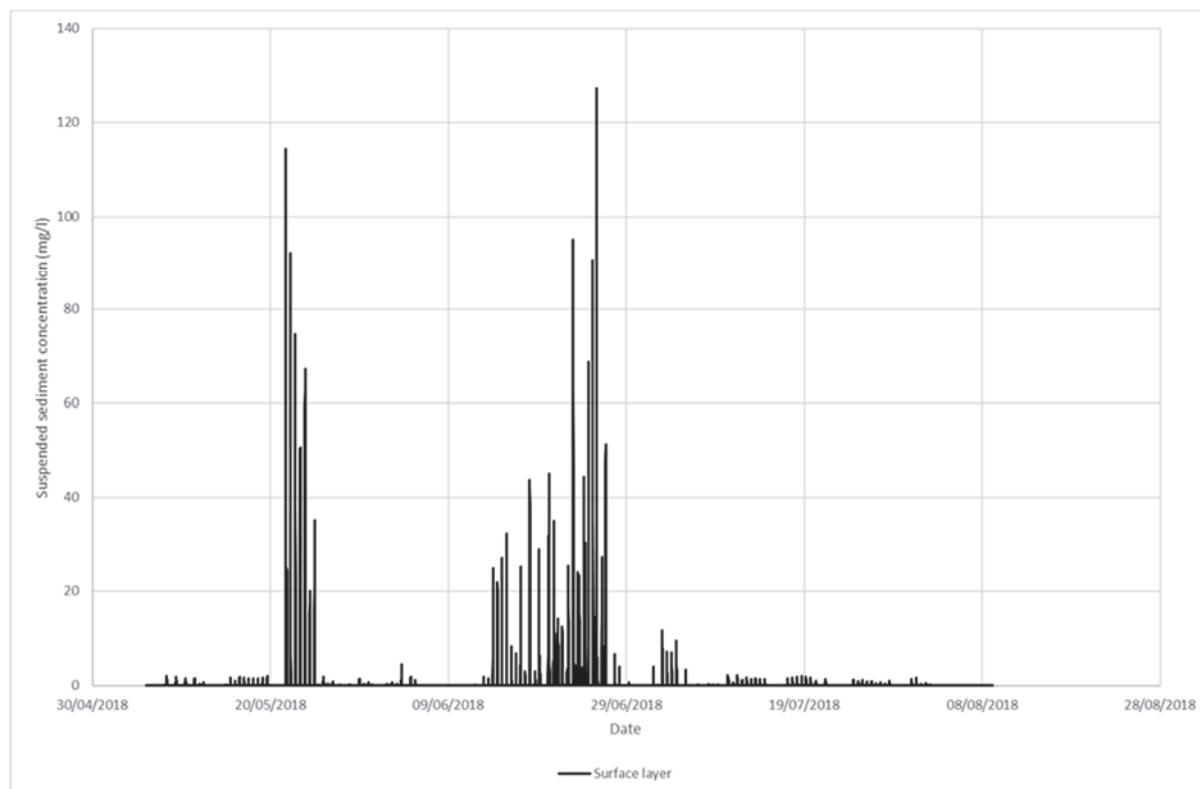


Figure 3 SSCs at the Holyhead Stag Rock monitoring point as a result of capital dredging activity for the approach channel. Each bar represents 5 minutes

## 2.2.4 Results

The output of the tool is summarised below, and the tool itself is included as a separate file submitted with this report.

### 2.2.4.1 Heavy metals

Risks to water quality from heavy metals consider the effect to the EQSs that would occur following disturbance, resulting from the potential shift from the particulate state into the dissolved state.

The results indicate that the background levels of heavy metals within Holyhead Bay water body represent between 1.15% and 24.6% of the EQS's. The output also indicates that concentrations of heavy metals, as determined by using the mean sediment concentration, are not at risk of breaching their respective EQS's as they are only calculated to increase concentrations by 0.367%. It is also worth noting that there is predicted to be no risk of breaching the heavy metals EQS's when the maximum sediment concentrations are used (although the tool promotes the use of mean concentrations when interpreting the data as the 'spot' nature of the outputs does not account for any environmental variations). Therefore, levels of heavy metals within the sediment are unlikely to give rise to EQS breaches during the dredge campaign.

### 2.2.4.2 TBT

Given TBT remains effectively bound to sediment when disturbed, increases in suspended sediment are used to determine potential effects on EQSs.

The TBT results indicate that the maximum acceptable SSC, before the water quality EQS is breached, is 216mg/l (this accounts for baseline concentrations). However, given the data presented in **Figure 3**, these

concentrations are not predicted to be recorded at the Stag Rock monitoring site. As a result, it is unlikely that the TBT EQS would be breached at the monitoring point.

### 2.2.4.3 PAHs

As for TBT, PAHs remain effectively bound to sediment when disturbed, and increases in suspended sediment are used to determine potential effects on EQSs.

Although baseline water quality data for PAH compounds was not available, the tool can still be run with a baseline of 0 thus allowing an indicative assessment regarding the potential allowable uplift of SSC before EQS for each PAH parameter is at risk of being breached. These are presented in **Table 3**.

Table 3 SeDiChem results for PAHs

| PAH compound         | Maximum acceptable suspended sediment uplift (mg/l) |
|----------------------|-----------------------------------------------------|
| Benzo[a]pyrene       | 436                                                 |
| Benzo[b]fluoranthene | 191                                                 |
| Benzo[ghi]perylene   | 13                                                  |
| Benzo[k]fluoranthene | 401                                                 |
| Fluoranthene         | 500                                                 |

The maximum acceptable suspended sediment concentration for PAH compounds, before the water quality EQS is breached, ranges from 191mg/l to 500mg/l for benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene and fluoranthene. Given the headroom available (indicated in the tool in column BC) and the low levels of SSC when averaged over the dredging schedule, it is unlikely that the EQS will be breached, even with the presence of baseline concentrations for the majority of PAH parameters.

However, the results indicate that levels of benzo[ghi]perylene could be at risk of breaching the EQS at SSCs greater than 13mg/l, which is a much lower concentration than indicated by the other parameters assessed in the tool. However, as stated above, areas exceeding this concentration are only likely to be experienced in close proximity to the dredger and average SSCs outside of this area are significantly lower than 13mg/l (**Figure 3** indicates SSC would exceed this value for 25.5 hours, or 1%, of the 15 week period). Regarding baseline concentrations of this parameter, it is possible that this water body is already failing the EQS given the very low EQS concentration. This would be consistent with the recently revised classifications available for other UK transitional and coastal waters. Given the above, it is unlikely that the dredging would give rise to significant concentrations over and above those already likely to be present in the baseline.

### 2.2.5 Conclusions

The tool indicates that there is a possibility that one of the PAH parameters, benzo[ghi]perylene, could exceed its EQS during capital dredging. However, sediment plume modelling indicates that elevated SSC will not be experienced over a large area, limiting them to close proximity to the dredging activity. Additionally, time series data from the sediment model extracted for the Stag Rock water quality monitoring point shows elevated SSCs are not continuous but are a set of short-lived peaks in concentrations which return to baseline within less than an hour. Consequently, any risk to EQS would be small scale and temporary.

Therefore, the conclusions remain the same as those presented in the ES, in that the magnitude of effect is deemed to be low which gives rise to an overall impact of **minor adverse** significance.

## 2.3 Sediment Dispersion Time-Series Plot

To illustrate the fate of the suspended sediment plume following the final release of sediment at the Holyhead North disposal site, data from 0 minutes following release, 30 minutes, 60 minutes and 90 minutes were extracted from the model. The movement of the plume during the high-water peak ebb tidal phase was chosen as during this tidal phase the plume travels the furthest.

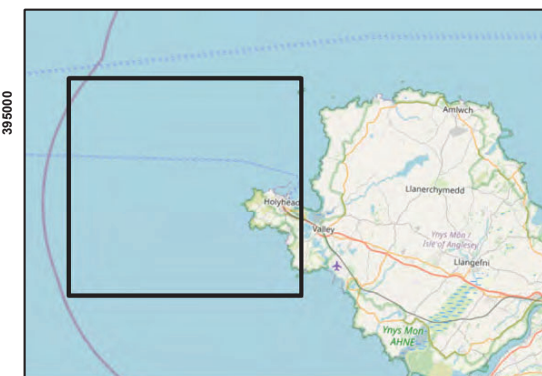
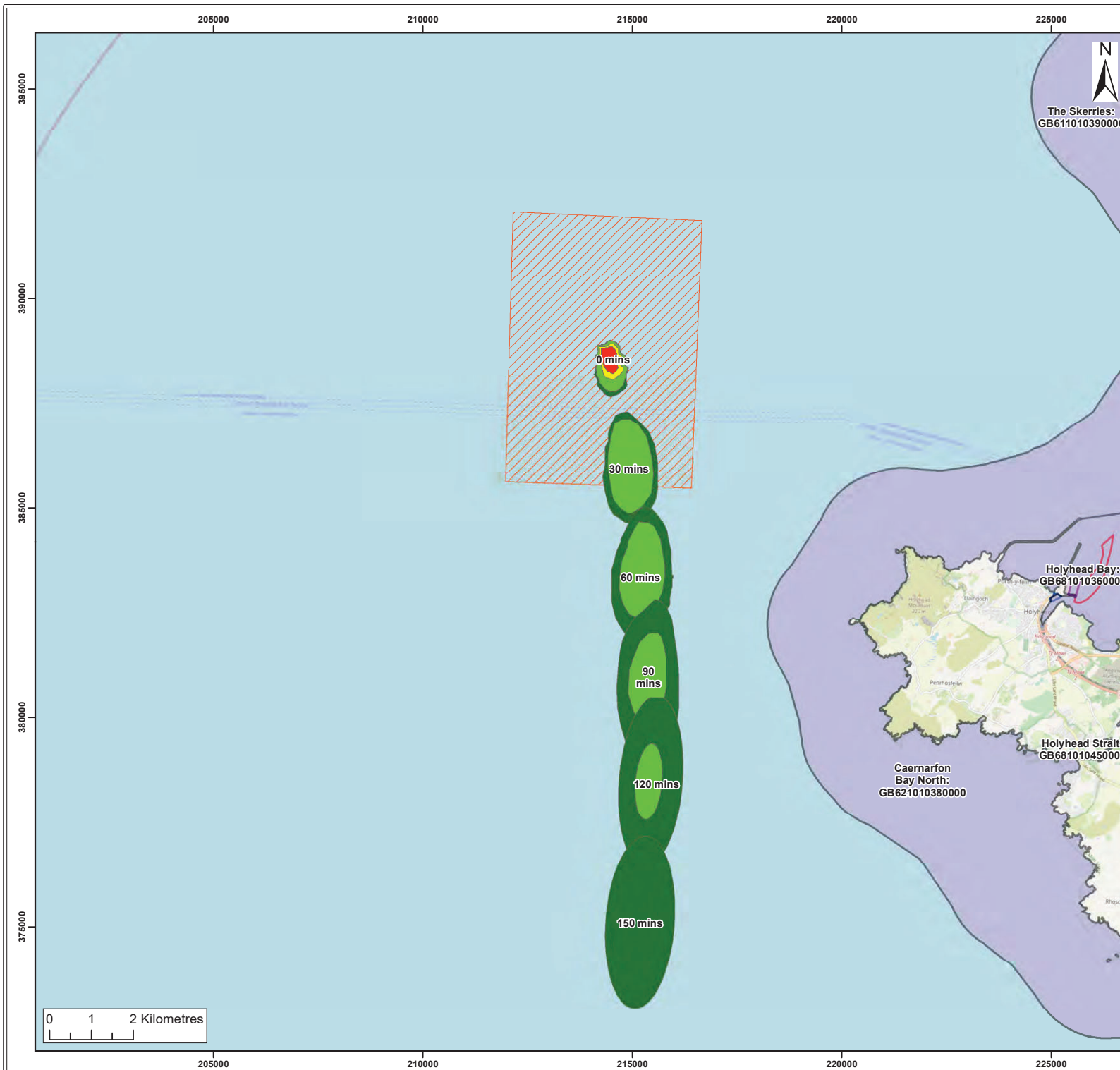
Using this data, the total area of the plume was calculated and plotted on a line graph. The proportion of the area represented by each concentration range was also calculated and plotted on a graph. Trendlines were added to the graphs to enable an estimation of the progression of the concentrations and size of the plume to determine when the entire plume had dissipated to within background levels (5.5-10mg/l). These values are presented in **Table 4**.

*Table 4 Fate of the sediment plume following last release at the disposal site at high water peak ebb. Estimated values for 120 and 150 minutes are highlighted in green*

| Time after last release | Area of plume (km <sup>2</sup> ) | Area of suspended sediment concentration ranges (km <sup>2</sup> ) |            |           |            |
|-------------------------|----------------------------------|--------------------------------------------------------------------|------------|-----------|------------|
|                         |                                  | >100mg/l                                                           | 50-100mg/l | 10-50mg/l | 5.5-10mg/l |
| 0 mins                  | 0.8                              | 0.2                                                                | 0.17       | 0.31      | 0.12       |
| 30 mins                 | 2.72                             | -                                                                  | -          | 1.9       | 0.82       |
| 60 mins                 | 3.55                             | -                                                                  | -          | 1.89      | 1.66       |
| 90 mins                 | 4.25                             | -                                                                  | -          | 1.49      | 2.76       |
| 120 mins                | 4.83                             | -                                                                  | -          | 0.89      | 3.94       |
| 150 mins                | 5.28                             | -                                                                  | -          | 0.05      | 5.15       |

These estimated values for the fate of the plume 120 minutes and 150 minutes after last release were then used to draw the area of the plume, and the areas of the concentration ranges within it, on a map alongside the model outputs (see **Figure 4**). The shape and direction of the plume at 120 minutes and 150 minutes after last release was estimated based on the trajectory and distance travelled by the model outputs.

The output shows that the SSCs within the plume dissipate to within background levels (5.5-10mg/l) within 150 minutes of the last release. **Figure 4** also illustrates that the plume travels in a southerly direction and does not enter the inshore coastal zone. Therefore, a deterioration in water quality within the Caernarfon Bay coastal water body, and any nearby Bathing Waters or Shellfish Waters is not anticipated. It is concluded that there would be no impact to these water quality receptors and there is no change to the conclusions of the ES of **minor adverse significance**.



Legend:

**Proposed Scheme**

- Approach Channel

**Reclamation Areas**

- Salt Island Expansion
- Pelham Patch Development
- Holyhead North Disposal Site
- WFD Coastal Water Body

**Suspended Sediment Concentration (mg/l)**

- Above 100mg/l
- 50 – 100mg/l
- 10 – 50mg/l
- 5.5 – 10mg/l
- Below 5.5

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Base map: © OpenStreetMap (and) contributors, CC-BY-SA

|                      |                         |
|----------------------|-------------------------|
| Client:              | Project:                |
| Stena Line Ports Ltd | Holyhead Port Expansion |

Title: Fate of the sediment plume following the last release at the disposal site at high water peak ebb

|           |                            |
|-----------|----------------------------|
| Figure: 4 | Drawing No: PB6108-108-400 |
|-----------|----------------------------|

| Revision: | Date:    | Drawn: | Checked: | Size: | Scale:   |
|-----------|----------|--------|----------|-------|----------|
| 01        | 09/03/21 | JT     | SM       | A3    | 1:90,000 |
|           |          |        |          |       |          |

Co-ordinate system: British National Grid



**ROYAL HASKONINGDHV**  
INDUSTRY & BUILDINGS  
2 ABBEY GARDENS  
GREAT COLLEGE STREET  
LONDON  
SW1P 3NL  
+44 (0)20 7222 2115  
www.royalhaskoningdhv.com

## 2.4 Potential impacts to lower sensitivity habitats within the Holyhead Bay coastal water body

The following text was submitted to NRW on the 17<sup>th</sup> February 2021 (see **Appendix C**) and has been agreed with NRW (**Appendix D**).

As discussed in the ES and ES Addendum, a small area of the approach channel capital dredge would involve the removal of the existing soft subtidal sediments to rock in order to achieve the required dredge depth (-10m CD) (see **Figure 5**, presented as Figure 3.8 in the ES). This area equates to 0.068km<sup>2</sup>, which represents 1.17% of the area of soft subtidal habitat within the Holyhead Bay coastal water body (calculated to be approximately 5.8km<sup>2</sup> within the water body area of 11.71km<sup>2</sup>). The area of soft subtidal sediment within the water body was calculated using habitat mapping data available on Defra's Magic Map website<sup>1</sup> which is based on EMODnet<sup>2</sup> habitat data, the same data as that used to calculate the area of habitats within WFD water bodies.

The sediments within the proposed dredge area comprise a single biotope (*Abra alba* and *Nucula nitidosa* in circa-littoral muddy sand or slightly mixed sediment (SS.SSa.CMuSa.AalbNuc)), as recorded during the site specific survey undertaken in June 2018. Two of the characterising species of this biotope – *A. alba* and *N. nitidosa* – are both burrowing bivalves which are found buried within 5cm of the sediment surface to facilitate feeding and respiration (Sabatini and Ballerstedt, 2008; Budd, 2007). Characterising polychaete species, such as *Nephtys hombergii*, are also found in burrows and tunnels of up to 5cm beneath the sediment surface (Budd and Hughes, 2005) and *Spiophanes bombyx*, a species of bristleworm, inhabits a stiff sandy tube which usually protrudes slightly above the surface to aid suspension feeding but can be up to 25cm in length (Ager, 2005). Therefore, a sediment depth of at least 5cm would be required for the biotope to recover.

Given the key issue here relates to the removal of the soft sediment to rock, thereby altering the habitat present, it is proposed that the areas that would be dredged to rock are dredged to a target depth of -10.1m CD. Sedimentation rates within the deeper areas dredged to rock are expected to be greater than the surrounding higher seabed as they will form traps for sediment which would accrete sediment rapidly through natural processes including bedload transport, sediment deposition and slumping. This would provide a buffer of at least 0.1m of sediment (though in reality, and given the dredging accuracy, this will likely be deeper) that would remain when maintaining the approach channel at -10m CD.

With this mitigation in place it is considered that the area of habitat change would be limited to the area of the side slopes, as sediment is less likely to accumulate in these areas. The area of the side slopes required for the approach channel is 0.012km<sup>2</sup> which represents only 0.02% of the soft subtidal habitat within the water body.

Once sufficient depth of sediment has accumulated, species of the SS.SSa.CMuSa.AalbNuc biotope from the surrounding area would be able to recolonise the dredge area. Diaz-Castaneda *et al.* (1989) experimentally investigated recolonisation sequences of the SS.SSa.CMuSa.AalbNuc biotope over a period of one year, following defaunation of the sediment in experimental containers. The abundance, total biomass and diversity of the community all increased until a maximum was reached after 20 to 24 weeks, depending on the time of year. The community within the containers matched that of the surrounding natural areas quantitatively within four to eight months depending on the availability of recruits, food supply and faunal interactions. Seasonal variations in recruitment success were noted; summer settled recruits

<sup>1</sup> <https://magic.defra.gov.uk/MagicMap.aspx>

<sup>2</sup> <https://www.emodnet.eu/en/seabed-habitats>

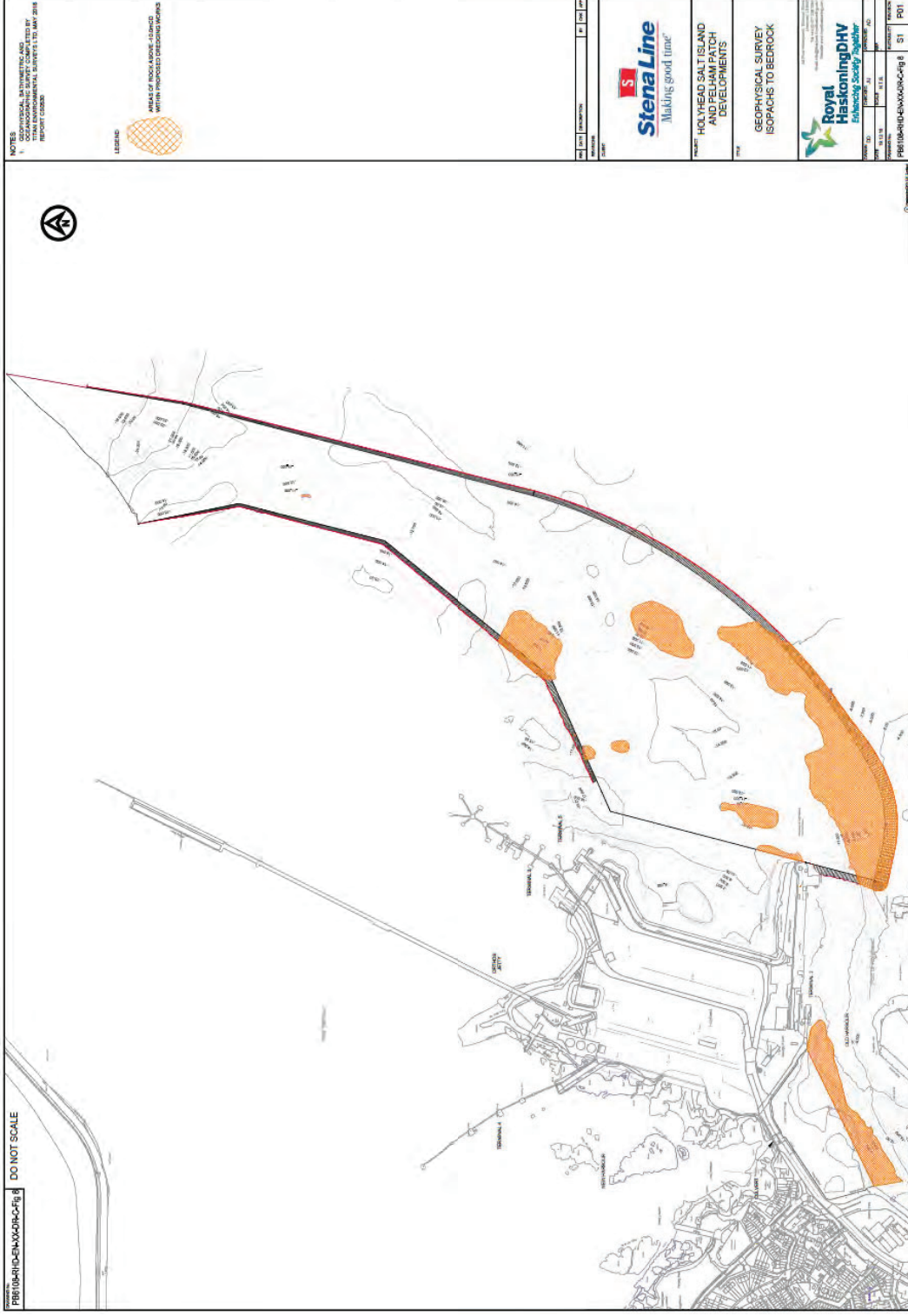
grew very rapidly and spawned in the autumn, however autumn recruits experienced delayed growth and did not reach maturity until the following spring/summer.

The experimental data suggested that *A. alba* would colonise available sediments within the year following environmental perturbation. In the worst instance, a breeding population of *A. alba* may take up to two years to fully establish. Dittman *et al.* (1999) observed that *Nephtys hombergii* (a species of polychaete worm which are characteristic of the infauna of this biotope) was included amongst the macrofauna that colonised experimentally disturbed tidal flats within two weeks of the disturbance that caused defaunation of the sediment. In addition to larval recruitment, recolonisation by polychaete worms could also occur via adult migration. Tillin and Budd (2016) conclude that it is likely that the dominant infaunal bivalve and polychaete community of the SS.SSa.CMuSa.AalbNuc biotope would recover rapidly from a disturbance and mature populations of important characterising species be present within a year.

With the provision of the mitigation measure of a -10.1m CD target dredge depth of the areas that would be dredged to rock, the previously anticipated loss of 1.17% of the lower sensitivity soft subtidal sediment habitat within the water body would be reduced to 0.02%, which is well below the 1% threshold.

Recolonisation by the SS.SSa.CMuSa.AalbNuc biotope has been shown to take between six and 12 months. Whilst a worst case of up to two years has been noted, the fact that the biotope is so prevalent in the surrounding area (as evidenced by the survey data and data available from the HABMAP project, showing that this biotope is uniform throughout Holyhead Bay), recolonisation is anticipated to be far quicker and more in line with the 6 – 12 month timeframe. Maintenance dredging is anticipated to be required every five years (ES Addendum, Section 4.2.2.2). Therefore, the area will be able to recolonise and establish for long periods between maintenance dredge campaigns.

Taking the above into account, the effect of the capital dredge on the soft subtidal habitat within the Holyhead Bay Coastal water body is considered to be temporary and is not predicted to cause a deterioration of the biological elements of the water body.



*Figure 5 Area of rock to be dredged within the approach channel*

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## Appendix A

### ES Addendum Consultation Responses

Sent via email

18 December 2020

Dear Mr Gardiner,

### **Marine Licence Application CML1931 – Holyhead Port Expansion**

On the 20 December 2019 we issued a request for further information to you as we considered this was required to properly consider the environmental effects of the project. Further information was subsequently provided on 1 October 2020.

We note that the further information included a revision to the proposed scheme so that all dredge material would be disposed of offshore at Holyhead North disposal site. An ES addendum was produced which presents the changes to the proposed scheme and considered the impact of these changes. The addendum also provided additional clarification in response to the further information request of the 20 December 2019.

Following review of the further information as well as representation received during the consultation period we consider that a number of concerns previously raised have now been addressed. However, there are a number of matters raised by some consultees that need clarification. On the 16 December 2020 all consultation responses received were shared with you and we would advise you to carefully review these. However, I draw your attention to the below which need addressing by yourselves.

### **Project Description**

It is unclear from the application form whether a Cutter Suction Dredger (CSD) may be used as part of the works or if this method has now been discounted. Please could you clarify if a CSD is being proposed and if so, whether this method has been considered within the assessment.

### **Coastal Processes**

I would draw your attention to NRW Technical Experts (NRW TE) consultation response dated 3 December 2020. A number of points of clarification were requested in order to understand the modelling carried out within the ES addendum. The result of the modelling feeds into a number of impact assessments including the marine and coastal ecology, marine and sediment water quality as well as fish and shellfish resource, therefore clarification to point raised by NRW TE is required. I would strongly encourage you discuss these point directly with NRW TE where possible prior to submitting a response.

The modelling carried out within the ES Addendum has assessed dredge and disposal taking place over a 15-day period. However, the application form details that the dredge and disposal work would likely be spread over a 4-month period. Depending on the clarification provided to the modelling outputs and the duration of the works NRW TE have advised that timing restriction may need to be considered in terms of impact on water quality. I would recommend that this is further discussed with NRW TE.

### **Benthic Ecology**

Micro-siting of rock material when disposed at Holyhead North Disposal Ground has been proposed within the ES Addendum. NRW TE have requested that in addition to rock material, gravel and firm clays should also be micro-sited in order to avoid impact on *Sabellaria spinulosa* reefs. Please confirm whether it is possible and practical to micro-site this material.

In addition to the above, NRW TE have requested further modelling where uniform distribution of material is considered in order to make realistic prediction of the changes in bed level. We would advise that this is discussed with NRW TE. Following review of NRW TE response we would advise that a clear disposal plan containing mitigation to avoid impact on *Sabellaria spinulosa* reefs is presented.

### **Marine Mammals**

No additional information has been provided within the ES addendum regarding the equipment that will be used to carry out the piling. You will note that NRW TE response have raised that further noise assessment may be required in future if the equipment used significantly changes from that used in the modelling.

### **Marine Water and Sediment Quality**

NRW TE have provided a number of points related to marine water and sediment quality. Please could you review the comments within NRW TE consultation response and look to provide clarification.

### **Water Framework Directive Compliance Assessment**

NRW TE have provided a number of points related to WFD assessment. Please could you review the comments within NRW TE consultation response and look to provide clarification as needed. NRW TE have requested additional evidence in order to consider the percent of deterioration or habitat loss that would occur in the Holyhead Bay coastal water body. I would strongly encourage you to engage with NRW TE prior to providing clarification around this point.

### **Marine Ornithology**

You will note that both NRW TE and LPA have provided comment and consider that mitigation measures for Black Guillemots is necessary. From review of the ES (specifically Chapter 15 page 297) it appears that you are proposing that nest boxes will be installed before works begin, in addition to pre-construction survey and surveys of nesting black guillemots during construction. Could you please confirm my understanding is correct.

In addition I note from Table 4-11 of the ES addendum Ref ORN2 that proposed mitigation in relation nesting birds is proposed to be incorporated into the Construction Environment Management Plan for the site. Please confirm whether mitigation measure relating to Black Guillemots are proposed to be incorporated into the same document.

### **Archaeological and Cultural Heritage**

Section 4.10.1 of the ES addendum details that further consultation was undertaken with IoACC and Cadw to confirm the mitigation required. However, the correspondence presented within the appendix appears to be between IoACC only. Could you please clarify.

Reference is made within appendix to the ES addendum and within IoACC response to Additional mitigation. This is proposed in relation to cultural heritage within the ES addendum. Please can you confirm that the additional mitigation referred to is that referenced within section 4.10.2 of the ES addendum.

I would draw your attention to the response received from Gwynedd Archaeological Trust which sets out proposed requirement for the work. Please provide any comment you may have on these requirements.

Additionally, it would assist to understand if a listed building consent has been applied for.

I would also draw your attention to advice received from Gwynedd Archaeological Trust Response that relevant archaeological assessments should be shared with regional Historic Environment Record (HER) and National Monuments Record of Wales where relevant.

As referred to above I would strongly recommend that you engage with NRW TE prior to submitting your response. To obtain NRW TE advice directly you can contact the Marine Area Advice and Management Team at their general inbox:

[marine.area.advice@cyfoethnaturiolcymru.gov.uk](mailto:marine.area.advice@cyfoethnaturiolcymru.gov.uk)

Please provide the information requested above by **29 January 2021**. Please contact me as soon as possible if additional time will be required to collate this information.

In the meantime, should you have any queries please do not hesitate to contact me on [peter.morrison@cyfoethnaturiolcymru.gov.uk](mailto:peter.morrison@cyfoethnaturiolcymru.gov.uk)

Yours sincerely



**Peter Morrison**

Marine Licensing Team  
Natural Resources Wales

To: Peter Morrison – Marine Licensing Team  
From: Katie Reynolds, Marine Area Management and Advice Team  
Date: 2/12/2020

## Marine Licence consultation: Holyhead Port Expansion

**Marine Licence application CML1931**  
**Applicant: Ian Davies, Stena Line Ports Ltd**

### Response to email from Peter Morrison dated 21<sup>st</sup> Oct 2020

#### Summary

The proposed scheme comprises the following activities:

- reclamation of two intertidal/subtidal areas (the Salt Island Expansion and the Pelham Patch Development);
- dredging of an approach channel to the new berths at 10m bCD;
- dredging of the new berth at Pelham Patch;
- dredging at the base of quay walls on Salt Island to accommodate the installation of scour protection; and,
- possible additional dredging for installation of caissons as the new quay walls

#### Documents Submitted

- Marine Licence application form (2 forms provided, 1 Marine Works and 1 Dredge Application Form).
- Welsh National Marine Plan (WNMP) Assessment
- Signposting Document
- Environmental Statement (ES) Addendum

NRW DMS file: [here](#)

#### NRW Advisors Consultation Record

| NRW Advisor  | Role/Team                                                          | Comments                                                     |
|--------------|--------------------------------------------------------------------|--------------------------------------------------------------|
| Sue Williams | Development and Flood Risk Advisor, North and Mid                  | <a href="#">ES comments</a>                                  |
| Holly Self   | Specialist Advisor - Marine Mammals (All Wales Marine Advice Team) | <a href="#">ES comments</a> and <a href="#">HRA comments</a> |

|                     |                                                                                           |                                                                |
|---------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Kate Borrowdale     | Specialist Advisor - Marine Water Quality (All Wales Marine Advice Team)                  | <a href="#">Water Quality comments</a>                         |
| Emmer Litt          | Specialist Advisor – Marine and Coastal Physical Processes (All Wales Marine Advice Team) | <a href="#">ES comments</a> and <a href="#">HRA comments</a>   |
| Ben Wray            | Specialist Advisor: Marine Ecology (All Wales Marine Advice Team)                         | <a href="#">ES comments</a>                                    |
| Emily Groves        | Specialist Advisor – WFD (All Wales Marine Advice Team)                                   | <a href="#">WFD comments</a>                                   |
| Rebecca Laidlaw     | Specialist Advisor – Marine Ornithology (All Wales Marine Advice Team)                    | <a href="#">HRA comments</a>                                   |
| External consultant | Environmental Consultant (ABPmer)                                                         | <a href="#">Water Quality</a> and <a href="#">WFD comments</a> |

## NRW Advisory Comments:

### Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

NRW Advisory have provided the following comments on the Environmental Statement (ES) Addendum and associated documents provided in support of the application.

#### Coastal Processes

##### Headline comments

1. The modelling presented within the ES addendum has limited explanatory model set-up and scenario text alongside to allow interpretation of results.

It is inferred the results presented at Holyhead Disposal Ground are at the end of the entire dredging campaign. However, over the 15 weeks of dredge and disposal modelling, are the results presented the greatest spatial and temporal effect seen? As this is likely governed by the varying hydrodynamics over that time. It would likely make a difference if the final model output was captured during a spring ebb or neap flood as an example. We need to understand the whole spatial footprint of increased SSC over the entire campaign and the duration and concentration that would entail and the final fate of sediments.

2. More information is required on how the sediment release rate in Holyhead Harbour caused by dredging has been captured within the revised construction methodology; the so-called 'S-factor'. Relating back to Appendix C3 of the original ES, clarification is sought on whether the updated dredging and disposal approach has changed the assessment?

##### Detailed comments

##### **ES Addendum**

##### Section 3.2.3 Sediment Plume Dispersion Model

Limited model set-up, validation and scenario methodology is presented to allow assessment at present, this impacts all receptor sections further on within the ES addendum. It is important to understand the hydrodynamic conditions at the time of the outputs presented and whether during the 15-day model run if there are times of greater SSC spatial extent observed.

##### Section 3.3.1 Coastal Processes

It is important to understand how the sediment deposition within Holyhead Harbour has been modelled; the so-called 'S-factor'. Relating back to Appendix C3 of the original ES, has the updated dredging and disposal approach changed the assessment?

#### Section 3.3.2. Marine and Sediment Water Quality

Further information about the updated plume dispersion SSC model set-up and scenario runs are required to enable water quality assessment of impacts.

No quantification is provided on the sediment released through construction activities. It is important to understand the residual sediment that will be released into the water column through dredging and what fate that will have, from both the TSHD and BHD the so-called 'S-factor' within the SSC model. It is unclear if the updated dredging and disposal approach has changed the assessment.

The updated modelling methodology at the disposal site has not been presented to allow an assessment of the validation and calibration and accuracy of prediction. The scenarios that have been modelled are also omitted, it is unclear on the tidal and wave state to ensure a worst-case scenario has been considered. Depending on the hydrodynamic conditions at the point of output, the fate of the sediment will be different, justification is required on the scenario chosen. Of concern is the fate of the plume on coastal receptors, such as bathing waters, shellfish beds and amenity beaches.

Clarification is required over the differences in figure 3-10 (page 25) and 4-10 (page 58), they appear to have the same figure legend however the modelled output and picture is very different.

#### Section 3.3.3. Marine and Coastal Ecology

Further information is required about the updated plume dispersion SSC model set-up and scenario runs are required to enable benthic assessment of impacts.

#### Section 3.3.4. Fish and Shellfish resources

Further information is required about the updated plume dispersion SSC model set-up and scenario runs are required to enable fish / shellfish assessment of impacts.

#### Section 4.2.2. Maintenance Dredging

It is unclear if information is missing from Table 4-3. However, it can be summarised from the assessment that maintenance dredging requirements would be around 40,000m<sup>3</sup> at the approach channel every 5 years and 24,000m<sup>3</sup> at Pelham Patch every year. The amounts are lower than anticipated and therefore we agree to no significant change in the locality due to substantial dredging needs or beach draw down.

#### 4.3.2 Time Series Plots

We are unable to comment on the time series plots until we can understand the scenarios that have been run and the point of output within the model.

#### Cumulative Impact Assessment

Project changes have been made to the Holyhead Waterfront regeneration scheme and updated information presented, we recommend this is considered within cumulative impacts to ensure there are no compounding factors.

### **Dredge and disposal application**

#### 9. Duration of Dredging and/or Disposal Operation

The marine license has a timescale: 'Dredging and disposal activities are anticipated to occur over a period of 4 months spread over within a 1-year period commencing from January 2022.'

The applied timescale is different to what has been assessed within the ES addendum, with dredge and disposal occurring over 15 days. From a physical process perspective this is not an issue, however, it may impact other receptors, and restrictions on timing may be needed depending on the outcome of the modelling and WQ discussions.

#### 10. Dredging and/or Disposal Vessel(s) Details

The application states a Cutter Suction Dredger (CSD) may be used, however this has not been assessed within the ES. Clarification is sought as to whether the worst-case scenario has been investigated in terms of dredge release during construction.

#### 11. Method statement for dredging and/or disposal operations (if applicable)

In this section it states that CSD has been discounted due to needing to re-use material in land reclamation. The method has now changed and we would recommend the section was updated and CSD assessed if it is now being proposed.

#### 13. Details of Material to be Dredged and/or Disposed

In the table, the quantities are listed as to be dredged each year – a note should be made that this is a one-off capital dredge.

### **Benthic Ecology**

#### Headline comments

- Disposal of dredge material: micro-siting of dredge material at the disposal site should include firm clays and gravels (as well as rock) to avoid impact on Annex 1 – outside SAC/Section 7/OSPAR habitats
- Impact on Sabellaria spinulosa habitat (OSPAR/Section 7, Annex 1 feature – outside of SAC) through the deposition of fine material at the disposal site has not been ruled out
- Requirement of post dredge disposal monitoring to reinforce assumptions of ES

#### Detailed comments

This section provides a response the revised proposal outlined by the applicant in the ES Addendum and also incorporates the information contained in the Marine Works and Dredge and dredge disposal application.

##### 3.3.3.1 Smothering of benthic habitats and species as a result of the dredging works

Given the revised methodology and subsequent changes in the assessment and modelling outputs, there appears to be limited impact pathways on intertidal or subtidal benthic habitats as a result of smothering from the dredge works at the Port of Holyhead. This assumption is subject to modelling and water quality concerns being addressed and agreed by the relevant NRW physical specialists. See also physical process and water quality comments.

##### 3.3.3.2 Smothering of benthic habitats and species at the disposal site

We note the revisions to sediment type volumes (Table 3-1) contained in the ES Addendum as well as the inclusion of mitigation measures to micro-site the disposal of 'rock' to avoid impact on Annex 1/Section 7/OSPAR sensitive habitats at the disposal site.

The approach to micro-siting disposal of material is welcomed. However, it is likely that the disposal of 'firm clays' and 'gravels' in the volumes and timescales specified will also have an

adverse effect on sensitive habitats at this location. Therefore, we advise that the micro-siting of firm clays and gravels (as well as rock) should be undertaken which would provide confidence that all measures to avoid impact on sensitive Annex 1/Section 7/OSPAR habitats are being taken.

Furthermore, and in relation to ensuring that the worst-case scenario presented in Figure 3-4 is avoided, particularly in relation to the deposition of fine material, we advise the inclusion of a ML condition ensuring that deposition of material across the disposal site is uniform as far as reasonably possible, and not concentrated in a few locations. This uniform distribution should be presented as a modelled output so as to make further predictions about changes in bed level.

*Sabellaria spinulosa* is resilient to some amount of smothering for a certain time period. However, under the worst-case scenario i.e. over 10m bed level change, adverse impact to this habitat would be sustained. The applicant should demonstrate how impact to this habitat can be avoided through a varied disposal plan and/or micro-siting.

Some post disposal monitoring would also be advised to ascertain bed level change and reaffirm the assumption of the ES.

## **Marine Mammals**

### *Headline comments*

We advise that piling mitigation should be considered 'required' and conditioned as such as part of the marine licence

### *Detailed comments*

Our original comments as supplied in October 2019 should be considered to remain valid unless otherwise indicated in this response.

## Section 4.6 Marine Mammals

### 4.6.1 Response to Stakeholder comments, Table 4-9

MM4 - We acknowledge the statement that due to the methodology identified, soft start is not a practicable option for these works.

MM10 – The response to this comment refers to section 4.15, which contains no additional information pertaining to the specific equipment to be used in relation to the estimates used to make assessments. Table 4-20, which follows on from this section, also doesn't provide any additional information and refers to "Morlais Information to Support HRA report", which has not been updated as part of this consultation. Therefore, the point made in our original response (NRW 2019) that "should the actual equipment used differ significantly from those used in the modelling, such that significantly different noise characteristics could reasonably be assumed, the conclusions of this assessment and subsequent HRA may no longer be valid" still stands.

### 4.6.3 Mitigation requirements (as referred to for both marine mammal sections in 4.15)

This section states 'However, if there is a requirement to ensure that no marine mammals are present within the potential injury zone prior to piling the follow measures are suggested based on the JNCC (2010) guidance:' As per our comments on the original consultation (NRW 2019) "Permanent threshold shift is a form of auditory injury and could be considered deliberate which would constitute an offence under the Habitats Regulations. We recommend therefore that mitigation is applied to ensure that no marine mammals are present within the potential injury zone prior to commencing piling.". We would therefore advise that this should be considered required and conditioned appropriately as part of the marine licence.

## Marine Water and Sediment Quality

### *Headline comments*

- Assessment of potential uplift in dissolved concentrations of contaminants and implications for chemical status of Holyhead Bay coastal water body is required.
- Assessment of pollution risk during disposal activities is required.
- Assessment of dewatering/construction discharges is required.
- Assessment on operational discharges (surface water drainage, increases in sewage discharge - cruise, increased employment, etc.) is required.

### *Detailed comments*

#### Section 4.3. Marine Water and Sediment Quality

These comments relate to both the ES Addendum and the original ES.

#### Section 3.3.2 of the ES Addendum and Chapter 9 of the original ES

Impact pathways related to marine water and sediment quality are focused toward potential increases in suspended sediment concentrations (SSC). Table 3.1 of the ES Addendum (p5) notes the revised total dredge volume is 2,015,354 m<sup>3</sup>. Over a 15 week dredging programme, this will be quite intensive. Potential issues related to sediment-bound contaminants in dredge material are largely dismissed due to the results of chemical analysis from samples collected from the proposed dredge areas. While it is acknowledged that the risk is small, high SSCs are predicted due to capital dredging and, therefore, it should be demonstrated that contaminant partitioning from suspended sediment (i.e. sediment-bound to dissolved in the water column) will not result in an issue to water quality. Potential uplift should be compared to respective Environmental Quality Standards (EQS).

Section 3.3.3.1 of the ES Addendum (p19) notes "...dewatering of the reclamation areas would no longer occur". This is also noted elsewhere in the document as a result of infill material being imported from marine aggregate resources (Table 4.6). However, we anticipate that some dewatering would still be required. We also note that no assessment of potential impacts to marine water and sediment quality from other construction discharges/surface water run-off has been identified. This is an omission.

Section 4.3.2 of ES Addendum (p48) states "Time series plots have been produced to illustrate the dissipation of SSC following the cessation of dredging and disposal activities". It is not clear from Figure 4.9 (p49) where dredging activity has occurred prior to this plot. Clarification is sought.

Section 4.3.2 of ES Addendum (p50-51) - Time-series plots of SSC dissipation (Fig 4.10 and 4.11) show the plume in the mid-layer moving south following cessation of dredging, well outside of the Holyhead North disposal site boundary. Clarification is sought on the fate of the plume. We recommend that bathing waters and shellfish waters are included and assessed in relation to the plume along with waste water and contaminants.

Section 3.3.3 of the original ES (p35), supported by Figures 3.12 and 3.13 (p36-37), describes the proposed new drainage arrangement for the two land reclamations. No assessment of the potential impacts to marine water and sediment quality has been provided for surface water/operational discharges.

Section 3.3.4 of the original ES (p38) states "There will be no change in the operational waste generated by the Port and waste management for the proposed scheme would be covered by the Port's existing waste management procedures". However, Section 23.5.1 of the original ES (p556) indicates that "the expansion is expected to generate over 13,000 jobs to the Anglesey local economy (Blue Chip Tourism)". This increase is anticipated to result in an uplift in wastewater

arising on the port estate, both as a result of cruise passengers and increased employment. The applicant is directed to the following Scoping Opinion comment: "Whilst consideration has been given to the inert waste arising from dredging; there is no consideration to other waste sources or quantities that may arise from the development either during construction or during operation". Further detail and assessment is required.

Section 9.4.4 of original ES (p160) noted that "The Port has an Oil Spill Contingency Plan (Stena Line Ports Ltd, 2017) which will be followed in times of a pollution event. As sufficient measures are in place to respond to a pollution event during the construction and operation of the proposed scheme, the risk of a significant effect is low. Given the control measures to be put in place this is not considered further in this section". The Holyhead North disposal site appears to be situated outside of the Area of Operation identified. Clarification is sought as to whether the Oil Spill Contingency Plan incorporates pollution risk during disposal activities. Potential impacts during disposal activities, from both capital and maintenance dredging, should be included to enable an assessment of marine water quality.

## **Water Framework Directive compliance assessment**

### *Headline comments*

- We do not agree that the proposed 1.2% loss of habitat would constitute a "temporary impact" as no evidence of this is provided. A further WFD compliance assessment is required to ensure the Holyhead Bay coastal water body does not deteriorate or is not prevented from achieving Good Ecological Status. We require evidence of the percent of deterioration/habitat loss that would occur.

### *Detailed comments*

#### Section 4.14. Water Framework Directive Compliance Assessment

Section 25.1 of original ES (p590) states "The WFD is transposed into national law by means of the Water Environment (WFD) (England and Wales) Regulations 2017". While the UK left the EU on 31 January 2020, the UK continues to be committed to meeting high environmental standards. The main provisions of the WFD have been retained in English and Welsh law through the Floods and Water (Amendment etc.) (EU Exit) Regulations 2019.

Section 25.2.2 of original ES (p591) states "The Holyhead North disposal site is not located within a WFD water body (Figure 25.1). Additionally, the results of sediment dispersion modelling (discussed in Chapter 8 and [sic] 0) indicate that the sediment plume would be limited to within and only slightly outside the boundary of the disposal site and therefore would not extend into a WFD waterbody. As such the disposal activity is not considered further in this assessment". Time-series plots of SSC dissipation (Fig 4.10 and 4.11) show the plume in the mid-layer moving south following cessation of dredging, well outside of the Holyhead North disposal site boundary. Clarification is sought on potential interaction of the plume with the Caernarfon Bay North coastal water body.

The Holyhead Bay coastal water body is currently (2018) classified as failing chemical status, specifically the parameters Fluoranthene, Benzo(a)pyrene, Mercury and its compounds and Trichlorobenzene. With the above WFD classification in mind, it is necessary to demonstrate the scale of any uplift during the proposed activities. It may be possible to show that the predicted uplift in contaminant levels, in particular those currently failing to achieve good, in the water column would be so small (and short-lived) to result in no discernible change at the water body level. This could use the maximum contaminant concentration in the dredge material, predicted increased SSCs and partition coefficients to estimate the increase in dissolved concentrations.

#### Section 4.14.2.

We do not agree that the proposed 1.2% loss of habitat would constitute a “temporary impact” as no evidence of this is provided. We remain in agreement with previous NRW advice stating that this be classed as habitat loss under the WFD. No evidence is provided that recolonisation would occur, and it is likely that opportunistic species would recolonise, meaning an irreversible loss of diversity of the water body. A loss of diversity would constitute deterioration in the biological elements of the water body.

As the physical footprint of the activity is greater than 1%, a further WFD compliance assessment is required to ensure the Holyhead Bay coastal water body does not deteriorate or is not prevented from achieving Good Ecological Status. We require evidence of the percent of deterioration/habitat loss that would occur. Benthic invertebrates are already a vulnerable element in this water body and are currently (2015) failing, and so should be included in the detailed assessment as well as habitat, and further evidence of recolonisation (if any) is sought. Please refer to OGN72: Guidance for assessing activities and projects for compliance with the Water Framework Directive, specifically sections: 4. Detailed Compliance Assessment (p.17), 3.3.1. Hydromorphology – reference to the 1% threshold (p.13), 4.1.1. Temporary works – specifically: “If the water body does not recover to the same status as before the activity started then the activity should not be treated as temporary” (p.19), and 4.7 Application of Article 4.7 if necessary.

### **Development and Flood Risk**

#### *Headline comments*

No further flood risk comments in relation to this Marine License Application.

#### *Detailed comments*

##### Section 4.12 Coastal Defence and Flood Risk

In relation to the Pelham Patch development, we note and can agree with the reasoning in the ES Addendum (Section 4.12.3), on the development type classification as that of ‘other’;

*‘The Pelham Patch Development forms part of the wider Port development and, as explained in Section 4.12.2, is in accordance with the “other” description requiring it to be located in a coastal location. Therefore, the Pelham Patch Development should not be classified as highly vulnerable. As also noted in Section 4.12.2, and in accordance with TAN 15 Paragraph 5.3, this development type will not be subject to the first part of the justification test in TAN 15 Section 6; however, is subject to the acceptability of consequences part of the test as outlined in TAN 15 Section 7 ....’*

We note also that a joint probability analysis of wave heights and extreme water (sea) levels has been carried out (EIA Appendix C1: Holyhead EIA – Wave Transformation Modelling) which considered various scenarios for the proposal with and without, the breakwater and note that the EurOtop method produces wave heights of 0.6m against the extreme sea level. It is further noted that the breach scenario referred to in the EIA (Section 21.5.4) found that;

*‘The Holyhead Breakwater PAR (Royal Haskoning DHV, 2017) also considered breach scenarios for the existing breakwater. Further modelling has been undertaken with the proposed scheme and the breakwater fully breached. The wave modelling (Appendix C1) predicted that wave heights with the proposed scheme in place would still be below 0.6m assuming the worst case (i.e. future 2119 scenario for the 1 in 1,000 year return period) wave heights with and without the breakwater.’*

And that, ‘..... the overall conclusion, based on the existing and current modelling, taking into account a breach in the breakwater, is that the proposed expansion of Holyhead Port and associated dredging would not increase flood risk in the area.’

As such, we do not have any further flood risk comments in relation to this Marine License application.

### **Conservation of Habitats and Species Regulations 2017 – Regulation 63**

The proposals are located within or adjacent to the boundary of an area designated as a European site of conservation importance under the provisions of the Conservation of Habitats and Species Regulations 2017. The sites are:

- Anglesey Terns SPA
- Holy Island SAC
- Holy Island SPA
- North Anglesey Marine SAC
- West Wales Marine SAC
- Bristol Channel Approaches SAC
- Pembrokeshire Marine (Marine Mammals only)
- Cardigan Bay (Marine Mammals only)
- Pen Llyn a'r Sarnau SAC (Marine Mammals only)

We welcome the information submitted with the application to address the potential implications of the proposed development on the designated features of the sites. We also welcome the draft HRA Form 1 provided by the Marine Licensing Team (MLT). Comments from NRW Advisory on the draft HRA Form 1 are as follows:

#### **Marine Mammals**

##### *Headline comments*

We agree with the conclusions of the Form 1 that there is a potential Likely Significant Effect to marine mammal features but as the works will not influence at the population level, Adverse Effects on Site Integrity can be ruled out. Some minor comments have also been provided.

##### *Detailed comments*

###### 4.1 Assessment of project as currently defined

For 'underwater noise – disturbance' it is stated that 'As the impact would be localised and temporary it is not considered that the works would have an adverse impact at the population level'. While we agree with the conclusion that there will not be an impact at the population level, there is potential for works to take place for up to 65 weeks, and this is a long period of time to be considered 'temporary'. We would advise that this be specified but that the conclusion can remain the same, as the area of impact is relatively localised and the density of marine mammals in the area relatively low.

#### **Benthic Ecology**

There are no specific relevant protected sites from a marine benthic ecology perspective other than potential marine invasive non-native species pathways. However, any concerns in this respect will be addressed through the biosecurity risk assessment submitted as part of the Marine Licensing process.

#### **Marine Ornithology**

##### *Headline comments*

We agree with the draft HRA with respect to the features of Anglesey Terns SPA.

### *Detailed comments*

As a note; Chough, a feature of Holy Island SPA, is not classed as a marine bird species. Previously NRW ornithology advice has mentioned the imperative to “implement the recommendations made in relation to mitigating impacts on Black guillemots”. The inclusion of discussion with the ES addendum regarding the potential locations and recent uptake of artificial nest boxes by black guillemots in reply to a comment by IoACC seems positive in that regard.

### **European Protected Species (EPS)**

NRW Advisory does not consider this proposal to have the potential to impact European Protected Species in the manner outlined in 41 (1) of the Conservation of Habitats and Species Regulations 2017.

### **Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000**

We consider that your consultation letter dated 28 August 2019 constitutes the giving of notice to NRW of proposed operations likely to cause damage to the Holy Island Coast SSSI under section 281 of the Wildlife and Countryside Act 1981 (as amended). Providing the proposals are carried out in the manner and location specified, it is our opinion that the special interests of the SSSI can be safeguarded.

### **Biodiversity Duty under the Environment (Wales) Act 2016**

NRW Advisory have made comments on the implications of the proposal on Section 7 habitats and species as part of our comments on the ES and supporting documents made earlier in this letter.

### **Marine and Coastal Access Act Part 5: Nature Conservation**

NRW Advisory concurs with the MLT opinion there is no significant risk of the proposed works hindering the achievement of the conservation objectives stated for Skomer Marine Conservation Zone.

### **EU Water Framework Directive (Directive No.2000/60/EC)**

NRW Advisory have provided comment above with respect to the WFD implications of the proposal.

**Katie Reynolds**

Marine Advisor

**Marine Area Advice and Management Team**

Enc. Form 2 with comments on HRA for CML1931



**MARINE AND COASTAL ACCESS ACT (2009). REQUEST TO REVIEW ADDITIONAL INFORMATION FOR THE HOLYHEAD PORT EXPANSION PROJECT BY STENA LINE PORTS LIMITED.**

**Reference Number:** CML1931

From: Jemma Lonsdale  
Cefas, Lowestoft Laboratory  
Date: 30<sup>th</sup> October 2020  
Tel: 01502 524491  
E-mail: [regulatory\\_assessment@cefa.co.uk](mailto:regulatory_assessment@cefa.co.uk)

**To: Peter Morrison - NRW (by e-mail)**

1. With reference to the above application for Holyhead Port Expansion, at Holyhead by Stena Line Ports Limited and your request for comments dated 21<sup>st</sup> October 2020 please find my comments below.
2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for sediment quality of, and the processes related to, dredged material management, including disposal. The response pertains to those areas of the post-application request that are of relevance to this field. This minute does not provide specialist advice regarding benthic ecology, marine processes, fish and fisheries, shellfisheries, or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.
3. In providing this advice I have spent 3 hours of the allocated 7.5 hours by NRW. I have booked my time to C7458CML1931.

**Document (s) reviewed**

4. Holyhead Port Expansion Environmental Statement Addendum, written by Royal HaskoningDHV on behalf of Stena Line Ports Limited, Reference PB6108-RHD-ZZ-XX-RP-Z-0001. 30<sup>th</sup> September 2020.
5. Marine Licence Application Form- Redacted
6. Signposting Document: PB6108-RHD-ZZ-XX-NT-Z-0002
7. Updated dredge and disposal application FINAL Redacted (signed 1<sup>st</sup> October 2020)

**Description of the proposed works**

8. In 2019, Stena Line Ports applied for a marine licence to expand Holyhead Port, on the western side of the Isle of Anglesey. The expansion will reclaim two areas (Salt Island Expansion and Pelham Patch Development) to provide new berths and associated landside port-related use, and to develop a new approach channel to 10m bCD. These reclamation areas will be infilled using a combination of dredged arisings and imported infill.
9. The applicant has provided updated quantities of material to be disposed to Holyhead North (IS043) as being 2,015,354 m<sup>3</sup>. This is an increase from the previous estimate of 1,475,000 m<sup>3</sup>. The breakdown is provided below:

Table 1: Total volume of sediment by type to be disposed at Holyhead North (IS043) taken from document 4 above (table 3-1).



| Sediment Type | ES volume to be disposed offshore (m3) | Revised volume to be disposed offshore (m3) |
|---------------|----------------------------------------|---------------------------------------------|
| Soft clay     | 630,000                                | 831,958                                     |
| Firm clay     | 430,000                                | 675,270                                     |
| Gravel        | 270,000                                | 366,431                                     |
| Rock          | 145,000                                | 141,696                                     |
| Total         | 1,475,000                              | 2,015,354                                   |

10. This request is to review the additional information the applicant (Stena Line Ports Limited) have submitted to NRW, both due to changes in the project design but also in response to Cefas comments dated 10<sup>th</sup> September 2019 (from myself to you).
11. Please fine my comments below- please note that all comments are observations unless otherwise stated.

### Comments

12. Section 4.2.2 provides additional estimates of potential future maintenance dredge requirements in the proposed approach channel and Pelham Patch development berth pocket based on the current maintenance dredge requirements of the existing berths, using a nine year period. I agree with this approach and welcome the inclusion.
13. Allowing for a tolerance of 0.2m in water depth, the frequency of maintenance dredging from the approach channel is estimated to be about five years, with removal of up to approximately 40,000m<sup>3</sup> of sediment each time (section 4.3, page 35). To maintain a berthing pocket at 5.5m below CD and again allowing for a tolerance of 0.2m in water depth, maintenance dredging is estimated to be required once a year, with removal of up to approximately 24,000m<sup>3</sup> of sediment each year from the berthing pockets (section 4.3, page 36).
14. In my previous advice (dated 10th September 2019), I raised the point that I would expect Chapter 24 to cumulatively assess the disposal operations at the disposal site. The applicant has confirmed that Wylfa Newydd will no longer go ahead and have updated the disposal options study in section 3.3.9. The approach appears reasonable, but I defer comment of the adequacy of assessment of the modelling undertaken to colleagues in NRW (Advisory) who have specialist knowledge in the use of coastal processes models.

**NRW Question: Do you have any comment on the OSPAR requirements for sampling, in particular would repeat sampling be required if works did not commence prior to August 2021? And if so would the requirement to resample likely be only in relation to surface samples, rather than depth sampling as has been undertaken.**

15. Samples were last collected and analysed in June/July 2018, these comprised seven from the surface and eight from depth, and as per my previous advice, these samples provide reasonable coverage of the proposed dredge area. The samples were analysed for trace metals, organotins, total hydrocarbons, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, and particle size distribution. (see Section 1.5 of the original Environmental Statement).
16. The results (shown in section 9.5.1 of the original Environmental Statement) show that the levels of contaminants are considered 'low', either being considerably lower than Cefas Action Level 2 (where an Action Level 2 exists), or within the ranges expected for the area. Therefore, I am of the opinion that repeat sampling should be undertaken prior to August 2023, i.e. allowing a five-year period between sampling regimes as per paragraph 5.6 of OSPAR Guidance 2014-06.

17. Whilst I am not providing comment on what the next sampling regime will consist of, I am of the opinion that only surface samples will be required if no works have been undertaken as it is unlikely the material at depth will change considerably, unless a pollution event occurs. I would advise the applicant seeks a sample plan from NRW prior to any samples being collected and analysed.

### **Summary**

18. I am content that the applicant has resolved my previous comments and I thank the applicant for doing so. I am of the opinion that due to the generally low levels of contamination concentrations demonstrated in 2018, that repeat sampling is not required until 2023, and only surface samples would likely be required.

**Dr Jemma Lonsdale**  
**Senior Advisor**

| <i>Quality Check</i> | <i>Date</i> |
|----------------------|-------------|
| Sylvia Blake         | 30/10/2020  |



## REQUEST FOR CONSULTATION ON THE HOLYHEAD PORT EXPANSION ENVIRONMENTAL STATEMENT

Reference Number: CML1931

From: Cefas, Lowestoft Laboratory  
Date: 26<sup>th</sup> November 2020  
Tel: 01502 562244  
E-mail: [shellfishadvice@cefas.co.uk](mailto:shellfishadvice@cefas.co.uk)  
[regulatory.assessment@cefas.co.uk](mailto:regulatory.assessment@cefas.co.uk)

To: **Peter Morrison**

Cc: Jemma Lonsdale

- SEAL Case Officer, Cefas

1. With reference to the above application for the Holyhead Port Expansion and your request for comments dated 21<sup>st</sup> October 2020, please find my comments below in my capacity as advisor on shellfish and shellfisheries
2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for shellfish. The response pertains to those areas of the application request that are of relevance to this field. This minute does not provide specialist advice regarding benthic ecology, fish and fisheries, coastal processes, or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.
3. In providing this advice I have spent 7.5 hours of the 7.5 hours allocated by the MMO. I have booked my time to C7456CML1931.

### Document (s) reviewed

4. Previous shellfish advice provided by Lucy Shuff 9<sup>th</sup> September 2020; 20190909\_CML1931\_Holyhead Port Expansion\_Shellfish.
5. CML1931 ES Addendum.pdf

### Description of the proposed works

6. Holyhead Port Expansion project includes reclamation of two intertidal/subtidal areas and the dredging of a channel to 10m below Chart Datum. Two new berths will also be constructed along with approximately 9ha of associated shore-based infrastructure. The reclamation process is expected to take approximately two years to complete. Operations are planned to commence in spring 2020 with pile driving and drill piling (and other high noise activities) undertaken between 7-7, Monday to Friday and 8-12 on Saturdays. Other activities, including dredging, will be undertaken on a 24-hour basis, seven days per week. Pile driving is expected to be completed in a period of three hours, with drill piling to be undertaken over a period of 10.5 hours per day during construction. A total of two million cubic metres of sediment is expected to be removed during dredging activities.



No specific questions are posed by NRW

**Cefas Comments:**

**Observations:**

7. All comments included in previous advice provided by Lucy Shuff (9<sup>th</sup> September 2019) have now been addressed by the applicant, there are no outstanding comments relating to Shellfisheries.
8. Section 4.5.2 of the ES Addendum address the previous issue raised about increased risks of *E. coli* in shellfish beds. Given that the modelling of any potential sediment plume indicates that there is unlikely to be any significant impacts on the shellfish beds and the useful context provided we agree that this comment is now satisfied and provides no increased level of risk.
9. In section 4.5.3, the applicant has acknowledged that female berried edible crabs (*Cancer pagarus*) are at an increased level of vulnerability during their overwintering period and has taken this into consideration when assessing the impact that the proposed works will have on.
10. Thank you for clarifying the location of the Class B mussel bed in relation to the project site. No further actions are required on this point.

**Summary**

All comments included in previous advice provided by Lucy Shuff (9<sup>th</sup> September 2019) have now been addressed by the applicant, there are no outstanding comments relating to Shellfisheries.



**Charlotte Reeve**  
**Shellfisheries advisor**

| Quality Check  | Date       |
|----------------|------------|
| Jemma Lonsdale | 01/12/2020 |



**MARINE AND COASTAL ACCESS ACT 2009: PART 4 MARINE LICENSING  
REVIEW OF FURTHER INFORMATION REGARDING HOLYHEAD PORT EXPANSION, HOLY  
ISLAND, ANGLESEY**

**Reference Number:** CML1931

**From:** Rebecca Faulkner  
Cefas, Lowestoft Laboratory  
**Date:** 24<sup>th</sup> November 2020  
**E-mail:**  
[Regulatory\\_Assessment@cefas.co.uk](mailto:Regulatory_Assessment@cefas.co.uk)  
[underwaternoiseadvice@cefas.co.uk](mailto:underwaternoiseadvice@cefas.co.uk)

**To:** Peter Morrison – NRW  
**Cc:** Jemma Lonsdale (Cefas)

**Underwater Noise Advice**

1. With reference to the above application for Holyhead Port Expansion, Anglesey and your request for comments dated 21<sup>st</sup> October 2020, please find my comments below in my capacity as advisor on underwater noise.

**Document (s) reviewed**

2. Holyhead Port Expansion Environmental Statement Addendum, 30<sup>th</sup> September 2020 – relevant sections including Table 4-9 'Response to Stakeholder comments'.

**Description of the proposed works**

3. Previous advice for this application was submitted to NRW on 10<sup>th</sup> October 2019. The Applicant has submitted an ES Addendum which I have reviewed. It sets out the stakeholder comments received by ES chapter and the required response to each comment.
4. Please see previous advice for further details of the proposed works. In summary, the proposed scheme comprises the reclamation of two intertidal/subtidal areas (the Salt Island Expansion and the Pelham Patch Development) and the dredging of an approach channel. Works will involve a number of noise generating activities (aside from dredging) such as piling and drilling.
5. It has been assumed that noisy construction activities would take place 7am to 7pm on a six-day week, with a total duration of driven piling of 3 hrs with 10.5 hrs of drill piling per day. Dredging works and all other construction activities would take place 24 hrs, seven days a week. Piling of the quay walls for Salt Island Expansion is estimated to take up to nine months. Piling of the quay wall at Pelham Patch Development is estimated to take up to four months.

**Cefas comments (note a o m m e n t s a e o s e a t o n s n e s s o t e s e s t a t e ) :**

**Further Information has now been provided by the applicant. Accordingly, we would be grateful if you could provide external advice, in relation to whether the further information provided within the ES Addendum address concerns that was raised within previous consultation response dated 11 October 2019.**

6. Please see my comments in the table below (Table 4-9, adapted from the ES Addendum) under the column **Cefas response, Nov 2020** for ease of reference. In summary, I believe my comments have generally been addressed, and I have no major further concerns.

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | [www.cefas.co.uk](http://www.cefas.co.uk) | +44 (0) 1502 562244





**Table 4-9 (adapted from the ES Addendum)** Cefas comments in response to the Applicant.

| Ref | Original Cefas comment (as per advice minute dated 10 <sup>th</sup> Oct 2019)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Applicant response                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Cefas response, Nov 2020                                                                                                                                                                                                                                                                                                                |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MM4 | Section 3.1.3 of Appendix F states that the source chosen for impact piling is an IHC S-280 hammer operating at 280 kJ driving a 610 mm pile. However, I note from the main ES that larger piles are anticipated to be installed (see Table 3.1 in the ES). Therefore, it is not clear how this is representative of the piles (and potentially hammer energy). This should be clarified.                                                                                                                                                      | Due to the substrate present it is anticipated that the piles will be drilled into place; however, there may be a requirement for the piles to be 'tapped' through the layer of soft surface substrate before drilling can commence. This activity would not require full power percussive piling, so to best represent this methodology, a smaller pile size was included within the modelling. The hammer energy, rather than the pile size, is the primary consideration for noise emission. | I agree that the hammer energy rather than pile size is the primary consideration for noise emission. However, larger piles generally require a higher hammer energy to install them. Provided that the 280 kJ hammer is representative of the hammer used to install the piles proposed for this development, then this is acceptable. |
| MM5 | When calculating the SEL <sub>cum</sub> impacts, the following is assumed (note, it has been estimated that each pile would require approximately 10.5 hours of drilling and 3 hours of piling per day): <ul style="list-style-type: none"> <li>Impact piling over a 3-hour period, operating without a soft-start</li> <li>Peckering noise is present over a continuous 24-hour period</li> <li>Dredging noise is present over a continuous 24-hour period</li> <li>Drill piling is present over a continuous period of 10.5 hours</li> </ul> | The assessment considers the cumulative impact of 'tapping' a pile over three hours. Should a pile take less time than this to install it should be possible for the contractor to move on to the next pile, if feasible, to start tapping that in, as long as it does not exceed the 3 hour time limit.                                                                                                                                                                                        | Response noted, and yes, if a pile takes less time to install than anticipated, then it will be reasonable for the contractor to move on to the next pile, if feasible, as long as the 'tapping' does not exceed the overall 3-hour time limit.                                                                                         |



|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | <p>Note that the assessment of cumulative exposure is therefore based on the assumption of installing a single pile per day, and the marine licence should reflect this. If more than one pile is anticipated to be installed, then the cumulative exposure assessment should reflect this, since the noise exposure criteria require a noise accumulation period of 24 hours.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| MM6 | <p>The underwater noise modelling also considers multiple construction activities based on the following worst-case scenario: impact piling in two locations (Salt Island Expansion and Pelham Patch Development), drill piling and peckering all operating simultaneously for a period of 24 hours. Section 4.6 of Appendix F states that for the multiple source scenario, <i>“the SPL<sub>peak</sub> noise level from impact piling in two locations, in addition to drill piling and peckering, is presented in Figure 4-6. The modelling assumes that all four sources are operating simultaneously. These results have been analysed for their potential impact given in the summary in section 4.7. Calculations of multiple pulse impacts consider the different operation period for each piece of equipment”</i>.</p> <p>The report further states <i>“where multiple sources are considered, the most onerous criteria (impulsive) should be used, although both sets have been included”</i>.</p> <p>I am not clear as to how the multiple scenario modelling has been derived. The sources considered are both impulsive and continuous, however the SPL<sub>peak</sub> metric (as displayed in Figure 4-6, below for reference) has been used which is not appropriate for continuous sources. This should be clarified.</p> | See Section 4.15. | <p>This comment is addressed in section 4.6.2 <i>Multiple scenario modelling</i> in the ES Addendum. Thank you for the clarification/additional information, and I can understand wanting to show the data using the same metric. However, without knowing more about how this figure was derived, then it is difficult comment on the appropriateness of it. It appears as though Figure 4-6 has been used for illustrative purposes only in the assessment, and therefore I do not have any major further concerns.</p> |



|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MM7 | <p>The predicted effect ranges for marine mammals and fish, for the multiple source scenario, are then based on the following:</p> <ul style="list-style-type: none"> <li>Marine mammals: SELcum for impulsive and non-impulsive criteria</li> <li>Fish: SELcum for impulsive criteria and SPLrms for continuous criteria</li> </ul> <p>Table 4.6 in Appendix F shows the SPLrms ranges, but not the unweighted SELcum (as suggested in the table caption).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Comment is noted. The referenced table caption is incorrect in <i>Appendix F of the ES</i>. The ranges within the table are however correct, and therefore no changes have been made.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>No further action required.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| MM8 | <p>No mitigation measures have been proposed for marine mammals, as the assessment concluded that there will be a negligible impact on the primary receptor species. For fish, it is proposed that all impact piling activities feature soft starts. Section 11.6.1 of Chapter 11 states that “this will ensure that sensitive fish species within the impact range will have the opportunity to move away from the noise source and reduce the risk of injury, either mortal or recoverable. With soft start piling in practice, the magnitude of this impact would be considered very low. The residual impact when incorporating soft start practices would be of negligible significance”. I agree that soft start procedures may reduce the total number of dangerous exposures in relation to auditory damage. I recommend that soft start measures are included as a licence condition. The duration of the soft start will need to be agreed with the regulator.</p> | <p>Soft start was not considered to be required as mitigation within the <i>marine mammal chapter (Chapter 12)</i> as potential impacts arising from single noise sources (e.g. piling and dredging) and multiple noise sources (piling in two locations and dredging) were assessed as negligible for all species.</p> <p>Due to the methodology set out in response to comment MM4, it is anticipated that the hammer energy required to tap the pile through the top soft substrate would be low. Therefore, due to this low energy required a soft start is not considered to be possible to perform a ramp up of the hammer energy. An increase in the frequency of hammer strikes is another option, however the pile will be installed before the ‘full power’ of the ramp up is reached; therefore,</p> | <p>This comment is addressed in section 4.6.3 <i>Mitigation requirements</i> in the ES Addendum. Soft start procedures are no longer proposed for the reasons explained by the Applicant. Of relevance, I also note in section 4.7.3 that the term ‘impact piling’ has been used to describe the tapping in of the piles through the softer surface sediments, prior to them being drilled through the rock. Impact piling</p> <p>The Applicant has put forward some potential measures to ‘ensure’ that no marine mammals are present within the potential injury zone prior to piling, based on the JNCC (2010) guidance. These include visual monitoring undertaken by a trained</p> |



|  |  |                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--|--|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | rendering a standardised soft start unachievable. Further mitigation requirements are addressed in <b>Section 4.15</b> below. | Marine Mammal Observer. I would support this proposal as a precautionary measure. The largest predicted impact ranges for fish were based on the cumulative exposure for piling. However, piling (along with drill piling) will not be undertaken at night (only during 7 am to 7pm). In general, disturbance can be expected from the proposed construction activities, however, in my opinion, the risk of significant impact in terms of injury is likely to be low. |
|--|--|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Rebecca Faulkner**  
**Underwater Noise Impact Scientist**  
**Noise & Bioacoustics Team**

|                     |            |
|---------------------|------------|
| <b>a t C e</b>      | <b>ate</b> |
| Jemma-Anne Lonsdale | 24/11/2020 |



**MARINE AND COASTAL ACCESS ACT (2009). APPLICATION BY STENA LINE PORTS LIMITED FOR THE EXPANSION OF HOLYHEAD PORT LOCATED ON HOLY ISLAND, ISLE OF ANGLESEY. REVIEW OF ENVIRONMENTAL STATEMENT ADDENDUM.**  
**Reference Number: CML1931**

FISHERIES ADVICE

From: Louise Straker Cox  
Cefas, Lowestoft Laboratory  
Date: 1<sup>st</sup> December 2020  
Tel: 01502 562244  
Email: [fisheries.advice@cefas.co.uk](mailto:fisheries.advice@cefas.co.uk)  
[regulatory\\_assessment@cefas.co.uk](mailto:regulatory_assessment@cefas.co.uk)

To: **Peter Morrison** – **NRW (by email)**  
Cc: Fisheries Advice – Cefas, Lowestoft  
Jemma-Anne Lonsdale – SEAL Case Officer Cefas, Lowestoft

1. With reference to the above application for Holyhead Port Expansion at Holy Island, Isle of Anglesey by Stena Line Ports Limited and your request for comments dated 21<sup>st</sup> October 2020 please find my comments.
2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for fish and fisheries. The response pertains to those areas of the application request that are of relevance to this field. This minute does not provide specialist advice regarding benthic ecology, marine processes, shellfisheries or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.
3. In providing this advice I have spent 7.5 hours of the 7.5 hours allocated by NRW. I have booked my time to C7458CML1931

**Documents reviewed**

4. Holyhead Port Expansion Environmental Statement Addendum [PB6108-RHD-ZZ-XX-RP-Z-0001] Royal Haskoning DHV, 30 September 2020
5. Holyhead Port Expansion Signposting Document [PB6108-RHD-ZZ-XX-NT-Z-0002] Royal Haskoning DHV, 30 September 2020
6. Holyhead Port Expansion Updated Dredge and Disposal Application Form, Stena Line Ports Ltd, 01 October 2020
7. Holyhead Port Expansion Updated Dredge and Disposal Application Form, Stena Line Ports Ltd, 01 October 2020
8. For reference, I have also consulted the relevant signposted sections and tables within the ES.<sup>1</sup>

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<sup>1</sup> Holyhead Port Expansion Environmental Statement [I&BPB6108R006F0.1] Royal Haskoning DHV, July 2019



### Project Overview

9. After submission of the Holyhead Port Expansion Environmental Statement (ES) in July 2019, NRW have requested further information (December 2019) in relation to stakeholder comments. To support the provision of additional and clarified information Stena Line Ports Ltd (hereafter referred to as Stena Line) have produced an ES addendum which presents the changes to the proposed scheme and aims to consider the impact of these changes.

### Description of the proposed works

10. Holyhead Port is located on Holy Island (Ynys Gybi) on the western side of the Isle of Anglesey, North Wales. The port is privately owned by Stena Line and forms the principal link for surface transport from north Wales and central and northern England to Ireland. Please refer to the previous advice minute dated 19<sup>th</sup> October 2019 for a detailed project description.
11. In summary, the proposed project comprises dredging of: an approach channel; a new berth at Pelham Patch; at the base of quay walls on Salt Island (to accommodate installation of scour protection); and potential additional dredging for installation of caissons as the new quay walls. Reclamation of two intertidal/subtidal areas, Pelham Patch Development and Salt Island Expansion are also proposed. It is estimated that the proposed works will take two years to complete, starting in Q2 2021.
12. A few notable changes to the proposed scheme have been detailed in the addendum. Following advice from NRW that all dredged material should be kept within the marine environment, the developer has revised the proposed scheme to dispose of this material offshore at Holyhead North disposal site. The revised volume of material to be disposed of is now estimated to be 2,015,354 m<sup>3</sup> rather than 2,020,975 m<sup>3</sup> stated in the ES, due to the application of an erroneous rounding factor. Due to disposal offshore the dredging programme has also been reduced to approximately 15 weeks rather than 39. Furthermore, a reduced volume of cement for reclamation will be needed (85,710 m<sup>3</sup>) with 1,010,000 m<sup>3</sup> volume of material and 182 vessel trips required to support reclamation works.
13. The works will involve a number of underwater noise generating activities (aside from dredging) such as piling and drilling. It has been assumed that noisy construction activities would take place 7am to 7pm on a six-day week, with a total duration of driven piling of 3 hours with 10.5 hours of drill piling per day. Dredging works and all other construction activities would take place 24 hours, seven days a week. Quay wall construction requires piling, and this is estimated to take up nine months at the Salt Island Expansion and up to four months at Pelham Patch Development.

### General observations

14. Generally, my previous comments have been sufficiently addressed by the applicant. Previous fisheries advice for this application was submitted on 19<sup>th</sup> October 2019. This current advice minute provides a response to the addendum and utilizes the format and relevant responses from the previous advice minute (black text) where applicable. To aid review, the applicants' additional information from the addendum is highlighted in **red text** and further fisheries comments are given in **purple text**. All comments are observations unless otherwise stated.



### Fish and Fisheries baseline

15. Previous comment: The ES includes most of the expected information for fish and commercial fisheries, though the descriptions are brief and some of the assessments are not supported by references, literature or data evidence. No site-specific fish surveys have been undertaken.

Applicant Response FSR3: Table 11.2 of the ES provides a list of the data sources used for the assessment.

16. Acknowledged, no further action required. The ES utilizes appropriate information sources to support the assessment, this response was directed at the occasional lack of integration of references into the assessment. This comment can be considered as closed out.

17. Previous comment: The fish resource baseline has been based on data collected within ICES statistical rectangle 35E5 and appropriate data sources have been used to present a desk-based assessment. It is appreciated that some of the limitations of the data have been recognised. While third party data is discussed, seasonal limitations, gear selectivity, survey sampling methodology etc has not been considered or acknowledged as previously recommended. These are likely to affect catchability of non-target species. For example, the Cefas Irish Sea and Bristol Channel survey utilises a 4 m beam trawl and is conducted in September. Consequently, the gear is selective in which species are effectively targeted (the trawl will not adequately sample pelagic species and any species and life stages smaller than the liner mesh size) and seasonality of the sampling means that some parts of the local fish assemblage (both species and life stages) may not be representatively sampled.

Applicant Response CF4: Further explanation of data limitation assessment is provided in the Addendum, section 4.7.2.

18. No further action needed. I appreciate the applicant acknowledging the above comments and recognising that there are other inherent limitations associated with the data sources they have used to support the ES. They have also provided further explanation for not including each specific caveat/limitation for all data sources used and this adequately addresses my comments.

### Dredging, Disposal and Reclamation works

19. The updated plume dispersion and sediment deposition modelling is assessed to be within or fall below levels presented in ES, therefore I agree that the assessment presented in the ES remains valid. However, I defer to Cefas coastal processes advisors to determine the appropriateness and accuracy of the suspended sediment concentration (SSC) and plume dispersion modelling presented in the addendum.

20. Previous comment: The potential entrainment of fish (both egg and larval as well as adult stages) during dredging operations has not been considered or acknowledged in the ES. Early life stages and smaller bodied fish species may be vulnerable to entrainment by dredging and this has not been specifically considered in the ES assessment. In my opinion the impact level is likely to be low.

Applicant Response FSR4: An assessment of fish and fish eggs entrainment is provided in the Addendum; section 4.5.4.



21. I thank the applicant for providing an assessment of the entrainment of fish and fish eggs. This satisfactorily addresses my previous comment. No further comments.
22. Underwater noise from dredging vessels could potentially cause masking and temporary threshold shift (TTS, i.e. temporary hearing loss) to fish receptors (Popper et al., 2014; Wenger et al., 2017).

**Applicant Response FSR5:** The assessment represents a worst-case scenario of multiple sources of underwater noise. Impact ranges for TTS and PTS are provided in Table 11.7 of the ES. Impacts of minor adverse and negligible were predicted.

23. Noted, no further action required. This point was included in the previous response to specifically highlight the potential effects of TTS from dredging upon fish receptors were not explicitly stated or fully acknowledged within the ES, especially in relation to masking. I agree that Table 11.7 in the ES provides appropriate impact ranges for TTS and PTS for multiple sources of underwater noise. No further action required.

#### **Underwater Noise Assessment**

24. I defer to Cefas Underwater Noise Advisors to provide technical comments on the addendum responses specifically related underwater noise modelling. Given this, I have only responded to the applicant comments provided for both fisheries and underwater noise.
25. Previous comment: In my opinion the impact piling underwater noise modelling may not be representative of the piles and associated piling energy which will be potentially installed for the project. Section 3.1.3.1 of Appendix F states that the impact piling source level chosen for the modelling was an IHC S-280 hammer operating at 280 kJ driving a 610 mm, however the ES defines that the applicant is anticipating 900, 1270 and 1829 mm diameter tubular steel piles (walls and reclamation). I recognise that 600 mm sheet piles will also be installed, and the modelling may be more characteristic for these. I recommend that the applicant clarify and justify the representativeness of the modelling for the ES proposed project pile design.

**Applicant Response FSR6 (outlined MM4 (Table 4-9)).** Due to the substrate present it is anticipated that the piles will be drilled into place; however, there may be a requirement for the piles to be 'tapped' through the layer of soft surface substrate before drilling can commence. This activity would not require full power percussive piling, so to best represent this methodology, a smaller pile size was included within the modelling. The hammer energy, rather than the pile size, is the primary consideration for noise emission.

26. I appreciate the applicant providing more detail on the expected pile driving techniques and associated outcomes that will be used for installation based on the likely sediment type present. I concur with the comments of my colleague from the Noise and Bioacoustic team that hammer energy rather than pile size is the primary consideration for noise emission. I also am of the opinion that if 280 kJ hammer energy is actually representative of what is required to install the piles for this project, then this is acceptable.
27. Previous comment: It is my understanding that it has been estimated 10.5 hours of drill piling and 3 hours of impact piling are required to install 1 steel tubular and 3 sheet piles per day (12-hour working day). I am in agreement with my colleague from the Noise and Bioacoustics team that the



cumulative exposure scenario should reflect the number of piles to be installed per day and that the Marine Licence should include this.

Applicant Response FSR7 (outlined MM4 (Table 4-9)). The assessment considers the cumulative impact of 'tapping' a pile over three hours. Should a pile take less time than this to install it should be possible for the contractor to move on to the next pile, if feasible, to start tapping that in, as long as it does not exceed the 3 hour time limit.

28. Noted. I reiterate the comments of my colleague with specialist expertise in underwater noise. It is reasonable for the contractor to move onto the next pile when installation takes less time than anticipated when feasible, as long as the 'tapping' does not exceed the overall 3-hour time limit.
29. Potentially there are fish spawning in the vicinity of the project (as illustrated by ichthyoplankton and egg production surveys; paragraph 22). Bolle et al. (2016) highlights that information is lacking with regard to the sound levels at which mortality or injury will occur is limited for juvenile and adult fish and virtually non-existent for fish eggs and larvae. As planktonic larvae are passively transported by currents, they have limited capabilities of avoiding sound exposure and as a result, fish larvae may suffer more from underwater sound than older life stages. Research to date has mainly focused on injury and mortality assessments, whereas sound exposure may also affect physiology or behaviour and hence predation and starvation risks. Potential noise impacts on developing eggs and larvae needs to be considered and therefore I would recommend that the assessment includes consideration of potential noise impacts to fish egg and larval stages. This should be based on the Popper criteria mortality and potential mortal injury threshold of  $>210$  dB SEL<sub>cum</sub> dB re 1  $\mu$ Pa<sup>2</sup>·s or  $>207$  dB peak dB re 1  $\mu$ Pa. As acknowledged in the ES, sandeels spawn on the seabed and therefore their demersal eggs may be subjected to any underwater noise generated in their proximity.

Applicant Response FSR8: An assessment of potential noise impacts on larvae and juveniles is provided in the Addendum; section 4.5.5.

30. I appreciate that the applicant has provided a paragraph to assess this issue. I am in agreement that the noise exposure threshold for eggs and larvae provided within the Popper criteria is equivalent to the adult fish with swim bladder not involved in hearing given in the same publication. The applicant response sufficiently addresses my comments and I support the assessed minor significance level potential impact rating. No further action required.

#### **Minor presentational comments and typographical errors**

31. The scientific name for small-spotted catshark or lesser-spotted dogfish should be *Scyliorhinus canicula* instead of *S. canicular*.

Applicant Response FSR9: Comment is noted.

32. No further action required.

**Louise Straker Cox**  
Fisheries Scientist and Lead Specialist Fisheries Regulatory Advisor

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | [www.cefas.co.uk](http://www.cefas.co.uk) | +44 (0) 1502 562244





| Quality Check     | Date       |
|-------------------|------------|
| Dr Gemma Lonsdale | 30/11/2020 |

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**From:** [Nicholas.Segust@gov.wales](mailto:Nicholas.Segust@gov.wales)  
**To:** [Morrison, Peter](#)  
**Subject:** RE: CML1931 Marine Licence Application Holyhead Port Expansion Further Information  
**Date:** 30 November 2020 14:44:04

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Dear Mr Morrison

Thank you for your consultation. An amended Environmental Impact Assessment has been prepared by Royal Haskoning DHV that has identified some measures mainly compensatory ones that can be included in the proposed development that will increase the public benefits of the scheme in regard to the historic environment. However the proposed development will still have a significant impact of the proposed development on the setting of the two listed building will need to be considered against the public benefit of the proposed development.

Kind regards.

Nick Segust  
Swyddog Gwaith Achos / Casework Officer  
Diogelu a Pholisi / Protection and Policy  
Gwasanaeth Amgylchedd Hanesyddol (Cadw) / Historic Environment Service (Cadw)  
Cadw / Cadw  
Llywodraeth Cymru/ Welsh Government

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**From:** Morrison, Peter <[Peter.Morrison@cyfoethnaturiolcymru.gov.uk](mailto:Peter.Morrison@cyfoethnaturiolcymru.gov.uk)>  
**Sent:** 21 October 2020 10:29  
**To:** [NRWlicences@thecrownestate.co.uk](mailto:NRWlicences@thecrownestate.co.uk); [DIO-Safeguarding-Offshore@mod.gov.uk](mailto:DIO-Safeguarding-Offshore@mod.gov.uk); navigation safety <[navigationsafety@mcga.gov.uk](mailto:navigationsafety@mcga.gov.uk)>; [Navigation.Director@thls.org](mailto:Navigation.Director@thls.org); Legal Mailbox <[legal@rya.org.uk](mailto:legal@rya.org.uk)>; [biodiversity@anglesey.gov.uk](mailto:biodiversity@anglesey.gov.uk); Riley Kevin <[kevin.riley@stenaline.com](mailto:kevin.riley@stenaline.com)>; Simon Roberts <[Simon.Roberts@rspb.org.uk](mailto:Simon.Roberts@rspb.org.uk)>; [dcxpl@anglesey.gov.uk](mailto:dcxpl@anglesey.gov.uk); [planning@anglesey.gov.uk](mailto:planning@anglesey.gov.uk); Coward, Matthew (ESNR-Tourism, Heritage & Sport-Cadw) <[Matthew.Coward@gov.wales](mailto:Matthew.Coward@gov.wales)>; Gareth Edwards <[gareth.edwards@rcahmw.gov.uk](mailto:gareth.edwards@rcahmw.gov.uk)>; possible deactivated account <[marinelicensing@rcahmw.gov.uk](mailto:marinelicensing@rcahmw.gov.uk)>; Michael Igoe <[migoe@ukchamberofshipping.com](mailto:migoe@ukchamberofshipping.com)>; Robert Carington <[RCarington@ukchamberofshipping.com](mailto:RCarington@ukchamberofshipping.com)>; NATS Safeguarding <[NATSSafeguarding@nats.co.uk](mailto:NATSSafeguarding@nats.co.uk)>; Jenny Emmett <[jenny.emmett@heneb.co.uk](mailto:jenny.emmett@heneb.co.uk)>; Jim <[jim@wfa-cpc.co.uk](mailto:jim@wfa-cpc.co.uk)>; WPMC / CMPC <[WFMCCMPC@gov.wales](mailto:WFMCCMPC@gov.wales)>  
**Subject:** CML1931 Marine Licence Application Holyhead Port Expansion Further Information

Dear Consultee,

## Marine Licence Application CML1931 Holyhead Port Expansion

The Marine Licensing Team received an application from Stena Line Port Ltd, for a marine licence to undertake the above stated works. An initial consultation of the application and the environmental statement took place between the 28 August 2019 and the 9 October 2019.

Following consideration of consultation responses received we considered that further information was required from the applicant in order to properly consider or come to a conclusion on, the likely significant environmental effects of the project. Further information was, therefore, requested from the applicant on the 20 December 2020.

Further Information in relation to the above application has now been provided. The developer has revised the proposed scheme so that all dredge material would be disposed of offshore at Holyhead North disposal site. The developer has produced an ES addendum which presents the changes to the proposed scheme and has considered the impact of these changes. The addendum has also been produced in order to provide further information and clarification in response to the further information request 20 December 2020. Full list of documents submitted as part of the further information submission are below;

- Marine Licence application form (2 forms provided, 1 Marine Works and 1 Dredge Application Form). *(to note the application forms dated 15 July 2019 have now been superseded by application forms dated 1 October 2020 which were provided as part of the further information submission)*
- Welsh National Marine Plan (WNMP) Assessment
- Signposting Document
- Environmental Statement (ES) Addendum

Further Information in relation to the above application has now been provided. As detailed in the attached letter we are now contacting you in order to seek your views on the application taking into account the further information which has now been submitted.

Please submit any comments you have to make within 42 days, this date being **2 December 2020**, referencing the case number CML1931.

If you do not respond by the above date we will assume you have no comment to make.

If you provided representation to the initial consultation raising concerns or objection we would be grateful if you could confirm whether these remain or if following review of the further information you consider them to be resolved.

The further information documents have been attached.

If you also require to see a copy to the application and Environmental Statement which was consulted on the 28 August 2019 this information is available on our fileshare system [here](#)

The further information submission as well as the Environmental Statement is also available on our online public register which can be accessed via our website <https://publicregister.naturalresources.wales/> You will need to search for the application reference CML1931 and I would advise then sorting documents by date.

If you are having difficulty accessing the documents please do not hesitate to contact me.

Kind regards

Peter Morrison

Uwch Swyddog Trwyddedu Morol / Senior Marine Licensing Officer  
Cyfoeth Naturiol Cymru / Natural Resources Wales  
Ty Cambria, Caerdydd / Cambria House, Cardiff

Siaradwr Cymraeg

**Yn falch o arwain y ffordd at ddyfodol gwell i Gymru trwy reoli'r amgylchedd ac adnoddau naturiol yn gynaliadwy.**

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[Twitter](#) | [Facebook](#) | [LinkedIn](#) | [Instagram](#)

**Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi. Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.**

Sganiwyd y neges hon am bob feirws hysbys wrth iddi adael Llywodraeth Cymru. Mae Llywodraeth Cymru yn cymryd o ddifrif yr angen i ddiogelu eich data. Os cysylltwch â Llywodraeth Cymru, mae ein [hysbysiad preifatrwydd](#) yn esbonio sut rydym yn defnyddio eich gwybodaeth a sut rydym yn diogelu eich preifatrwydd. Rydym yn croesawu gohebiaeth yn Gymraeg. Byddwn yn anfon ateb yn Gymraeg i ohebiaeth a dderbynnir yn Gymraeg ac ni fydd gohebu yn Gymraeg yn arwain at oedi. On leaving the Welsh Government this email was scanned for all known viruses. The Welsh Government takes the protection of your data seriously. If you contact the Welsh Government then our [Privacy Notice](#) explains how we use your information and the ways in which we protect your privacy. We welcome receiving correspondence in Welsh. Any correspondence received in Welsh will be answered in Welsh and corresponding in Welsh will not lead to a delay in responding.



9<sup>th</sup> December 2020

Our Ref: 1209je/D3154.01

Peter Morrison  
Marine Licensing Officer  
Natural Resources Wales  
Ty Cambria  
29 Newport Road  
Cardiff  
CF24 0TP

Dear Pete,

**Marine Licence Application Ref: CML 1931**  
**Holyhead Port Expansion**

Thank you for consulting us on the above application, and many apologies for the late response. Curatorial responsibility for marine areas lies primarily with Cadw and the Royal Commission on the Ancient and Historical Monuments in Wales (RCAHMW), but the scheme encompasses the inter-tidal zone and is inextricably linked to the terrestrial historic environment. A integrated approach to assessment and responses to archaeological and heritage matters is therefore required.

I have read through the chapters and appendices most relevant to archaeology (namely, Chapter 19: Archaeology and Cultural Heritage and associated Appendix G; and Chapter 20: Visual Assessment and associated Appendix H) together with general scheme details and technical information provided elsewhere in the Environmental Statement and subsequent addendum. I am satisfied that the archaeological assessments and geophysical surveys have been carried out in accordance with the relevant professional standards and provide a comprehensive basis for impact assessment. These reports do not appear to have been accessioned to the regional Historic Environment Record (HER) and National Monuments Record of Wales, and should be forwarded to these organisations (including, for the HER, a bilingual summary of the report and new sites) in order to fulfil professional obligations and to comply with the respective data usage agreements.

The Archaeology and Cultural Heritage chapter and underpinning technical reports are thorough and well-reasoned, and the conclusions and recommendations generally appear appropriate. The significance of the impacts upon the Grade II listed Admiralty Pier and Lighthouse (LB 14757 and LB 14758 respectively) is acknowledged and I would echo the strong concerns expressed in the Isle of Anglesey County Council's original response over the scale of harm. I note that discussions have subsequently taken place over means to ameliorate this harm and that the Council have withdrawn their objection in consequence. As we were not involved in these discussions, I do not feel in a position to provide further detailed comment on this aspect. I do however welcome the proposals to provide improved interpretation of the port's history and to remove or reduce existing detractors from the current setting. I note that further details (e.g. on container placement) are to be provided for discussion and that there will be additional assessment and discussion as part of the forthcoming

Cadeirydd/Chair - David Elis-Williams MA(Oxon), MSc, CPFA

Prif Archaeolegydd/Chief Archaeologist - Andrew Davidson, B.A., F.S.A., MCIfA

Mae Ymddiriedolaeth Archaeolegol Gwynedd yn Gwmni Cyfyngedig (Ref Cof. 1180515) ac yn Elusen (Rhif Cof. 508849)  
Gwynedd Archaeological Trust is both a Limited Company (Reg No. 1180515) and a Charity (Reg No. 508849)





listed building consent application, and am therefore obliged to trust that concerns over the impact upon the listed structures and their settings will be fully considered through this process.

In relation to the physical risk to the known and potential archaeological resource, this is, as noted, largely confined to the potential for submerged remains, and the geophysical surveys are extremely useful in this regard. The proposed implementation of a Protocol for Archaeological Discoveries (PAD) is appropriate for the majority of the scheme, given the potential for artefactual material indicated by the reported discovery of a prehistoric antler through dredging in the harbour (PRN 16579) and the general potential of a harbour environment. It is recommended that this should be secured by condition, should the marine licences be granted, and embedded in any CEMP or similar environmental management document that may be produced, for reference by all contractors who may be involved in the scheme.

The identification of the probable remains of the 18<sup>th</sup> century 'mail jetty', which formerly extended eastwards from Admiralty Pier, will require a specific mitigation response prior to any dredging or construction works. Avoidance would be the preferred approach in the first instance, because of the at least regional significance of the site and its association with the historic buildings at the port. I note that the ES proposes additional surveys and investigations to address the submerged archaeological risk. This is acceptable in principle if the site cannot be avoided, but details of the scope and methodology will need to be agreed in advance, and an appropriate condition is recommended. The PAD will not be suitable for this site, because it will provide only for the noting of material retrieved in the process of its destruction, rather than producing an archive record of the remains in as complete a state as possible.

Depending upon the construction methodology employed, there may also be potential for remains of earlier structures to be revealed by removal of modern elements ahead of reclamation works, and conversely to be concealed by the new development. It is anticipated that at Admiralty Pier, this would be addressed as part of the listed building consent process. At the Pelham Patch site, however, previous studies have identified a range of extant and former structures associated with the original establishment of the port which may be lost as a result of the proposals. It is therefore considered appropriate that a condition providing for the prior recording of these features in their present condition, and if necessary the monitoring of works to allow the recording of any additional information that may come to light, would be appropriate. This could in theory be combined with the above recommendation for the mail jetty into a single condition, but it is felt that it will be more practical to separate the elements of work, since the Pelham Patch development may not proceed, and the investigation of the mail jetty may require a different, specialist contractor to be commissioned. Again, we would recommend that such measures are also included in any CEMP, for future reference by all parties.

In light of the above comments, should NRW be minded to approve the Marine Licence applications, we would recommend that conditions are attached to secure appropriate safeguards for the undesignated built heritage, and the buried, marine and maritime archaeological resource. The following wording is suggested to secure such measures:

Cadeirydd/Chair - David Elis-Williams MA(Oxon), MSc, CPFA

Prif Archaeolegydd/Chief Archaeologist - Andrew Davidson, B.A., F.S.A., MCIfA

Mae Ymddiriedolaeth Archaeolegol Gwynedd yn Gwmni Cyfyngedig (Ref Cof. 1180515) ac yn Elusen (Rhif Cof. 508849)  
Gwynedd Archaeological Trust is both a Limited Company (Reg No. 1180515) and a Charity (Reg No. 508849)





*(a) No development (including geotechnical investigations or other preliminary works affecting the sea bed) shall take place within 100m of the location of geophysical Anomaly 7003 (as described in Section 19.5.4 and indicated on Fig.4 of Appendix G2 of the Environmental Statement), until an archaeological record has been completed in accordance with an agreed Written Scheme of Investigation and the record has been approved in writing by Natural Resources Wales. The Written Scheme of Investigation must be approved in writing by Natural Resources Wales before the archaeological record commences.*

*(b) No development (including geotechnical investigations or other preliminary works affecting the sea bed) shall take place until a method statement for implementing a Protocol for Archaeological Discoveries has been submitted to and approved in writing by Natural Resources Wales. This shall include a timescale for the notification to Natural Resources Wales of any historic or archaeological artefacts or features not previously identified which are revealed during the development hereby permitted.*

*(c) No development (including demolition, groundworks, geotechnical investigations or other preliminary works) shall take place at the 'Pelham Patch' site until a Written Scheme of Investigation for a staged programme of archaeological work, including a timescale for the programme of work and provision for reporting, specialist analysis, archiving, publication and dissemination of the results, has been submitted to and approved in writing by Natural Resources Wales. The development shall subsequently be carried out in accordance with the approved Written Scheme of Investigation.*

*(d) A detailed report on the archaeological work required by condition (c) shall be submitted within 12 months of completion of archaeological fieldwork and must be approved in writing by Natural Resources Wales.*

Reasons: 1) To ensure the implementation of an appropriate programme of archaeological mitigation

2) To ensure that the work will comply with MORPHE/Management of Archaeological Projects (MAP2) and the Standards and Guidance of the Chartered Institute for Archaeologists (CIfA)

Please do not hesitate to contact me with any queries regarding the above.

Yours sincerely

Jenny Emmett  
**Senior Planning Archaeologist**

From: [Rhys Ll. Jones](#)  
To: [Morrison, Peter](#); [Cynllunio Cynllunio](#); [Biodiversity](#); [Jenny Emmett](#)  
Subject: RE: CML1931 Consultation further information Holyhead Port Expansion  
Date: 04 December 2020 09:36:56

---

Dear Pete,

Please accept my apologies for missing the deadline of the 2<sup>nd</sup> December 2020. The IACC have been in dialogue with the applicant Stena Line Ports Ltd. and I will take this opportunity to update you on these discussions.

As detailed in the IACC's letter of the 9<sup>th</sup> October 2019, the IACC did have concerns regarding the impact of the proposed development on listed buildings within the Port (namely Admiralty Pier, George IV Arch, the Sea Wall and the lighthouse). Following these concerns, the applicant Stena Line Ports Ltd. arranged a meeting with the IACC on the 5<sup>th</sup> March 2020 to discuss the issues and to agree potential mitigation options. Following this meeting, on the 27<sup>th</sup> March 2020, the IACC responded to the Planning Inspectorate's consultation on the Harbour Revision Order. This included a summary of the latest position / mitigation options in relation to the impacts on Cultural Heritage as agreed on the 5<sup>th</sup> March.

Given the progress made in relation to mitigating the potential impacts on these historic listed buildings, the IACC have no objections to the Marine Licence application and wish to make no further comment in relation to the additional information submitted to NRW. In relation to marine and coastal ecology, the IACC would defer comment to the expertise of NRW specialists. The IACC would however emphasise the importance of biodiversity net gain as a result of habitat loss (particularly the impact on black guillemots) and would like to see appropriate mitigation for any habitat losses. This would not necessarily have to be in the immediate area of the proposal but could be at other site(s) around Holy Island or Anglesey. If like-for-like options are limited or not practical, some in-kind measures could be considered. The IACC are happy to discuss any mitigation proposal as required.

I trust this clarifies the IACC's position in relation to the application. Please do not hesitate to contact me if you require any further information.

Kind regards  
Rhys

---

**From:** Morrison, Peter <Peter.Morrison@cyfoethnaturiolcymru.gov.uk>  
**Sent:** 03 December 2020 09:56  
**To:** Cynllunio Cynllunio <CynllunioCynllunio@ynysmon.gov.uk>; Biodiversity <biodiversity@ynysmon.gov.uk>; Rhys Ll. Jones <RhysJones@ynysmon.gov.uk>; Jenny Emmett <jenny.emmett@heneb.co.uk>  
**Subject:** CML1931 Consultation further information Holyhead Port Expansion

Good morning,

We have recently consulted with you on further information which was submitted as part of the Holyhead Port Expansion Marine licence application. Within the further information submission the applicant looked to address concerns raised by various consultees when the application was first consulted. I have attached your original response which was received on the 9 October 2019. We subsequently consulted on the further information submission on the 21 October 2020 see letter attached, with the deadline for response yesterday the 2 December 2020.

As concerns were raised within the previous consultation response we are keen to understand whether any concerns previously raised have been addressed. As the deadline of the 2 of December deadline has now passed please can you confirm as soon as possible if you are intending to respond.

Kind regards

Pete

Peter Morrison

Uwch Swyddog Trwyddedu Morol / Senior Marine Licensing Officer  
Cyfoeth Naturiol Cymru / Natural Resources Wales  
Ty Cambria, Caerdydd / Cambria House, Cardiff

**Siaradwr Cymraeg**

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Mae'r neges e-bost hon a'r ffeiliau a drosglwyddyd ynghlwm gyda hi yn gyfrinachol ac efallai bod breintiau cyfreithiol ynghlwm wrthynt. Yr unig berson sydd i'r hawl i'w darllen, eu copio a'u defnyddio yw'r person y bwriadwyd eu gyrru nhw ato. Petaech wedi derbyn y neges e-bost hon mewn camgymeriad yna, os gwelwch yn dda, rhowch wybod i'r Rheolwr Systemau yn syth gan ddefnyddio'r manylion isod, a pheidiwch datgelu na chopio'r cynnwys i neb arall.

Mae cynnwys y neges e-bost hon yn cynrychioli sylwadau'r gyrrwr yn unig ac nid o angenrheidrwydd yn cynrychioli sylwadau Cyngor Sir Ynys Mon. Mae Cyngor Sir Ynys Mon yn cadw a diogelu ei hawliau i fonitro yr holl negeseuon e-bost trwy ei rwydweithiau mewnol ac allanol.

Croeso i chi ddelio gyda'r Cyngor yn Gymraeg neu'n Saesneg. Cewch yr un safon o wasanaeth yn y ddwy iaith.

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From: [Mark Wrigley](#)  
To: [Morrison, Peter](#)  
Subject: CML1931 Marine Licence application response  
Date: 2 October 2020 15:52:5

---

Dear Peter,

Thank you for the opportunity to respond to this consultation. We have no comment to make.

Regards,  
Mark

---

**Mark Wrigley** | Asset Manager

**M:** +44 7831 666 099 **T:** +44 20 7851 5062

The Crown Estate



1 St James's Market, London, SW1Y 4AH

**thecrownestate.co.uk**



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**From:** Morrison, Peter <Peter.Morrison@cyfoethnaturiolcymru.gov.uk>

**Sent:** Wednesday, October 21, 2020 10:29 AM

**To:** NRW licences <NRWlicences@thecrownestate.co.uk>; DIO-Safeguarding-Offshore@mod.gov.uk; navigation safety <navigationsafety@mcga.gov.uk>; Navigation.Director@thls.org; Legal Mailbox <legal@rya.org.uk>; biodiversity@anglesey.gov.uk; Riley Kevin <kevin.riley@stenaline.com>; Simon Roberts <Simon.Roberts@rspb.org.uk>; dcxpl@anglesey.gov.uk; planning@anglesey.gov.uk; matthew.coward@gov.wales; Gareth Edwards <gareth.edwards@rcahmw.gov.uk>; possible deactivated account <marinelicensing@rcahmw.gov.uk>; Michael Igoe <migoe@ukchamberofshipping.com>; Robert Carington <RCarington@ukchamberofshipping.com>; NATS Safeguarding <NATSSafeguarding@nats.co.uk>; Jenny Emmett <jenny.emmett@heneb.co.uk>; Jim <jim@wfa-cpc.co.uk>; WFMCCMPC@gov.wales

**Subject:** CML1931 Marine Licence Application Holyhead Port Expansion Further Information

Natural Resources Wales  
Cambria House  
29 Newport Road  
Cardiff

01 December 2020

Email: [peter.morrison@cyfoethnaturiolcymru.gov.uk](mailto:peter.morrison@cyfoethnaturiolcymru.gov.uk)

Dear Peter,

**MARINE AND COASTAL ACCESS ACT 2009: PART 4 MARINE LICENSING  
MARINE LICENCE APPLICATION CML1931 – HOLYHEAD PORT EXPANSION**

Thank you for your letter dated 21 October 2020 inviting the Maritime and Coastguard Agency (MCA) to comment on the additional information provided in support of the Marine Licence applications and the Environmental Statement (ES) for the Holyhead Port Expansion project.

The information provided has been considered by representatives of UK Technical Services Navigation. The MCA has an interest in the works associated with the marine environment, and the potential impact on the safety of navigation, access to ports, harbours and marinas and any impact on our search and rescue obligations. The MCA would therefore like to comment on the two Marine Licence applications submitted on 21<sup>st</sup> October (one for the Marine Works and one for Dredge and Disposal) and the ES addendum as follows:

1) We note that the revised proposed scheme addresses the feedback received during the initial consultation in 2019 and now states that all dredge materials will be disposed offshore at the Holyhead North Disposal Site. The developer has produced an ES addendum which considers the impact of these changes.

2) The site falls within the jurisdiction of Stena Line Ports Ltd who are the Statutory Harbour Authority (SHA) for the Port of Holyhead, and therefore responsible for maintaining the safety of navigation before, during and after these proposed works. We would expect the impacts of the works on the safety of navigation to be considered and addressed by the SHA, in consultation with the Harbour Master and other relevant navigation stakeholders.

3) We note that the ES addendum concludes that *the potential impact to navigation arising from construction vessel movements remains of **minor adverse significance** which, with mitigation including the publication of Notice to Mariners, and frequent communication with the Harbour Master to ensure the vessel movements do not impede the progress of the ferries this will be reduced to a residual impact of **negligible significance**.*

4) On this occasion, the Maritime and Coastguard Agency (MCA) has no objection to consent being granted provided all maritime safety legislation is followed and the conditions/advisories below are applied:

Conditions:

1. The Licencee must ensure that HM Coastguard, in this case [zone31@hmcg.gov.uk](mailto:zone31@hmcg.gov.uk) is made aware of the works prior to commencement.
2. The Licencee must notify the UK Hydrographic Office to permit the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system.

In addition, the following advice should be provided to the applicant to facilitate the proposed works:

Advisories:

1. The Licencee should ensure suitable bunding, storage facilities are employed to prevent the release of fuel oils, lubricating fluids associated with the plant and equipment into the marine environment.
2. Any jack up barges / vessels utilised during the works, when jacked up, should exhibit signals in accordance with the UK Standard Marking Schedule for Offshore Installations.
3. The site is within port limits and the applicant should gain the approval/agreement of the responsible local navigation authority or the Harbour Authority. They may wish to issue local warnings to alert those navigating in the vicinity to the presence of the works, as deemed necessary.
4. A local notification must be sent to the Harbour Authority on completion of both the construction works and the dredging and disposal works. Any change data *including engineering drawings, hydrographic surveys, details of new or changed aids to navigation* must then be sent to the Harbour Authority with the instruction to pass onto the UKHO as per guidance in 'Harbour Master's Guide to Hydrographic and Maritime Information Exchange' published on the UKHO website.
5. To address the ongoing safe operation of the marine interface for this project, we would like to point the developers in the direction of the Port Marine Safety Code (PMSC) and its Guide to Good Practice. They will need to liaise and

consult with the SHA and develop a robust Safety Management System (SMS) for the project under this code.

The sections that we feel cover navigational safety under the PMSC and its Guide to Good Practice are as follows:

From the Guide to Good Practice, section 7 Conservancy, a Harbour Authority has a duty to conserve the harbour so that it is fit for use as a port. The harbour authority also has a duty of reasonable care to see that the harbour is in a fit condition for a vessel to be able to use it safely. Section 7.8 Regulating harbour works covers this in more detail and have copied the extract below from the Guide to Good Practice.

#### 7.8 Regulating harbour works

7.8.1 Some harbour authorities have the powers to license works where they extend below the high watermark, and are thus liable to have an effect on navigation. Such powers do not, however, usually extend to developments on the foreshore.

7.8.2 Some harbour authorities are statutory consultees for planning applications, as a function of owning the seabed, and thus being the adjacent landowner. Where this is not the case, harbour authorities should be alert to developments on shore that could adversely affect the safety of navigation. In any case harbour authorities should ensure that the MMO or appropriate licensing authority consults them with regard to any applications for works or developments in or adjacent to the harbour area. Where necessary, consideration should be given to requiring the planning applicants to conduct a risk assessment in order to establish that the safety of navigation is not about to be put at risk. Examples of where navigation could be so affected include:

- high constructions, which inhibit line of sight of microwave transmissions, or the performance of port radar, or interfere with the line of sight of aids to navigation;
- high constructions, which potentially affect wind patterns; and
- lighting of a shore development in such a manner that the night vision of mariners is impeded, or that navigation lights, either ashore and onboard vessels are masked, or made less conspicuous.

7.8.3 There is a British Standards Institution publication on Road Lighting, BS5489. Part 8 relates to a code of practice for lighting which may affect the safe use of aerodromes, railways, harbours and navigable Inland waterways.

6) The MCA recommends that, as the site falls within the jurisdiction of a SHA, consideration is given to the current powers held under the Harbours Act 1964 to cover any changes to the current port operations as a result of these works (i.e. a Harbour Revision Order where necessary).

I hope you find this information useful.

Yours sincerely,

*HM Croxson*

Helen Croxson UK Technical Services – Navigation

From: [Duffy, David](#) [ffshore M L](#) [ER](#)  
To: [Morrison, Peter](#)  
Subject: : 2020102 CML1931 Marine Licence application Holyhead Port Expansion further information D10046364  
Date: 2 October 2020 12:14:29  
Attachments: [image001.png](#)  
[CML1931 Eddendum.pdf](#)  
[CML1931 i npostin Document.pdf](#)  
[CML1931 MP ssessment.pdf](#)  
[CML1931 updated dred e and disposal application L Redacted.pdf](#)  
[CML1931 marine or s application form L Redacted.pdf](#)  
[RML1931 Consultation Letter further information.pdf](#)

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Good Afternoon Peter,

Further to your e-mail below regarding further information being provided in relation to Marine Licence Application for the Holyhead Port Expansion, I can confirm that after investigation the MOD as No Objection regarding this activity in the locations specified. I hope this information is sufficient for your purposes.

Regards

**Michael Billings**

Assistant Safeguarding Manager  
Estates – Safeguarding

**Defence  
Infrastructure  
Organisation**

---

Building 49, DIO Sutton Coldfield, Kingston Road, B75 7RL

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**Mob:** 07970171283 | **Email:** [michael.billings950@mod.gov.uk](mailto:michael.billings950@mod.gov.uk)

**Website:** [www.gov.uk/dio/](http://www.gov.uk/dio/) | **Twitter:** @mod\_dio

**Read DIO's blog:** <https://insidedio.blog.gov.uk/>



---

**From:** Morrison, Peter <Peter.Morrison@cyfoethnaturiolcymru.gov.uk>

**Sent:** 21 October 2020 10:29

**To:** NRWlicences@thecrownestate.co.uk; DIO-Safeguarding-Offshore (MULTIUSER) <DIO-Safeguarding-Offshore@mod.gov.uk>; navigation safety <navigationsafety@mcga.gov.uk>; Navigation.Directoriate@thls.org; Legal Mailbox <legal@rya.org.uk>; biodiversity@anglesey.gov.uk; Riley Kevin <kevin.riley@stenaline.com>; Simon Roberts <Simon.Roberts@rspb.org.uk>; dcxpl@anglesey.gov.uk; planning@anglesey.gov.uk;

From: [afe uardin](#)  
To: [Morrison, Peter](#)  
Subject: RE: CML1931 Marine Licence application Holyhead Port Expansion further information 2 656  
Date: 10 November 2020 09:53:00  
Attachments: [ima\\_e001.pn](#)  
[ima\\_e002.pn](#)  
[ima\\_e003.pn](#)  
[ima\\_e004.pn](#)  
[ima\\_e005.pn](#)  
[ima\\_e006.pn](#)

---

Our Ref: SG28656

Dear Peter

The proposed development has been examined from a technical safeguarding aspect and does not conflict with our safeguarding criteria. Accordingly, NATS (En Route) Public Limited Company ("NERL") has no safeguarding objection to the proposal.

However, please be aware that this response applies specifically to the above consultation and only reflects the position of NATS (that is responsible for the management of en route air traffic) based on the information supplied at the time of this application. This letter does not provide any indication of the position of any other party, whether they be an airport, airspace user or otherwise. It remains your responsibility to ensure that all the appropriate consultees are properly consulted.

If any changes are proposed to the information supplied to NATS in regard to this application which become the basis of a revised, amended or further application for approval, then as a statutory consultee NERL requires that it be further consulted on any such changes prior to any planning permission or any consent being granted.

Yours faithfully



**NATS Safeguarding**

E: [natssafeguarding@nats.co.uk](mailto:natssafeguarding@nats.co.uk)

4000 Parkway, Whiteley,  
Fareham, Hants PO15 7FL  
[www.nats.co.uk](http://www.nats.co.uk)



---

**From:** Morrison, Peter <Peter.Morrison@cyfoethnaturiolcymru.gov.uk>

**Sent:** 21 October 2020 10:29

**To:** NRWlicences@thecrownestate.co.uk; DIO-Safeguarding-Offshore@mod.gov.uk; navigation safety <navigationsafety@mcga.gov.uk>; Navigation.Director@thls.org; Legal Mailbox <legal@rya.org.uk>; biodiversity@anglesey.gov.uk; Riley Kevin <kevin.riley@stenaline.com>; Simon Roberts <Simon.Roberts@rspb.org.uk>; dcxpl@anglesey.gov.uk; planning@anglesey.gov.uk; matthew.coward@gov.wales; Gareth Edwards <gareth.edwards@rcahmw.gov.uk>; possible deactivated account <marinelicensing@rcahmw.gov.uk>; Michael Igoe <migoe@ukchamberofshipping.com>; Robert Carington <RCarington@ukchamberofshipping.com>; NATS Safeguarding

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From: [Legal Mailbox](#)  
To: [Morrison, Peter](#)  
Subject: FW: CML1931 Marine Licence Application Holyhead Port Expansion Further Information  
Date: 16 November 2020 16:07:03  
Attachments: [image001.gif](#)  
[image002.gif](#)  
[CML1931 ES Addendum.pdf](#)  
[CML1931 Signposting Document.pdf](#)  
[CML1931 WNMP Assessment.pdf](#)  
[CML1931 updated dredge and disposal application FINAL Redacted.pdf](#)  
[CML1931 marine works application form FINAL Redacted.pdf](#)  
[ORML1931 Consultation Letter Further information.pdf](#)

---

Good Afternoon,

The RYA have no comments or concerns regarding this consultation.

Regards

**Bernadette Yockney**

Senior Administrator | Cruising, Legal & Government Affairs Department

Royal Yachting Association

T: 023 8060 4223 | E: [bernie.yockney@rya.org.uk](mailto:bernie.yockney@rya.org.uk)



RYA House, Ensign Way, Hamble, Southampton, Hampshire, SO31 4YA  
[www.rya.org.uk](http://www.rya.org.uk) T: 023 8060 4100 F: 023 8060 4299

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**From:** Morrison, Peter [<mailto:Peter.Morrison@cyfoethnaturiolcymru.gov.uk>]

**Sent:** 21 October 2020 10:29

**To:** [NRWlicences@thecrownestate.co.uk](mailto:NRWlicences@thecrownestate.co.uk); [DIO-Safeguarding-Offshore@mod.gov.uk](mailto:DIO-Safeguarding-Offshore@mod.gov.uk); navigation safety <[navigationsafety@mcga.gov.uk](mailto:navigationsafety@mcga.gov.uk)>; [Navigation.Director@thls.org](mailto:Navigation.Director@thls.org); Legal Mailbox <[legal@rya.org.uk](mailto:legal@rya.org.uk)>; [biodiversity@anglesey.gov.uk](mailto:biodiversity@anglesey.gov.uk); Riley Kevin <[kevin.riley@stenaline.com](mailto:kevin.riley@stenaline.com)>; Simon Roberts <[Simon.Roberts@rspb.org.uk](mailto:Simon.Roberts@rspb.org.uk)>; [dcxpl@anglesey.gov.uk](mailto:dcxpl@anglesey.gov.uk); [planning@anglesey.gov.uk](mailto:planning@anglesey.gov.uk); [matthew.coward@gov.wales](mailto:matthew.coward@gov.wales); Gareth Edwards <[gareth.edwards@rcahmw.gov.uk](mailto:gareth.edwards@rcahmw.gov.uk)>; possible deactivated account <[marinelicensing@rcahmw.gov.uk](mailto:marinelicensing@rcahmw.gov.uk)>; Michael Igoo <[migoo@ukchamberofshipping.com](mailto:migoo@ukchamberofshipping.com)>; Robert Carington <[RCarington@ukchamberofshipping.com](mailto:RCarington@ukchamberofshipping.com)>; NATS Safeguarding <[NATSSafeguarding@nats.co.uk](mailto:NATSSafeguarding@nats.co.uk)>; Jenny Emmett <[jenny.emmett@heneb.co.uk](mailto:jenny.emmett@heneb.co.uk)>; Jim <[jim@wfa-cpc.co.uk](mailto:jim@wfa-cpc.co.uk)>; [WFMCCMPC@gov.wales](mailto:WFMCCMPC@gov.wales)

**Subject:** CML1931 Marine Licence Application Holyhead Port Expansion Further Information

Dear Consultee,

## Marine Licence Application CML1931 Holyhead Port Expansion

The Marine Licensing Team received an application from Stena Line Port Ltd, for a marine licence to undertake the above stated works. An initial consultation of the

application and the environmental statement took place between the 28 August 2019 and the 9 October 2019.

Following consideration of consultation responses received we considered that further information was required from the applicant in order to properly consider or come to a conclusion on, the likely significant environmental effects of the project. Further information was, therefore, requested from the applicant on the 20 December 2020.

Further Information in relation to the above application has now been provided. The developer has revised the proposed scheme so that all dredge material would be disposed of offshore at Holyhead North disposal site. The developer has produced an ES addendum which presents the changes to the proposed scheme and has considered the impact of these changes. The addendum has also been produced in order to provide further information and clarification in response to the further information request 20 December 2020. Full list of documents submitted as part of the further information submission are below;

- Marine Licence application form (2 forms provided, 1 Marine Works and 1 Dredge Application Form). *(to note the application forms dated 15 July 2019 have now been superseded by application forms dated 1 October 2020 which were provided as part of the further information submission)*
- Welsh National Marine Plan (WNMP) Assessment
- Signposting Document
- Environmental Statement (ES) Addendum

Further Information in relation to the above application has now been provided. As detailed in the attached letter we are now contacting you in order to seek your views on the application taking into account the further information which has now been submitted.

Please submit any comments you have to make within 42 days, this date being **2 December 2020**, referencing the case number CML1931.

If you do not respond by the above date we will assume you have no comment to make.

If you provided representation to the initial consultation raising concerns or objection we would be grateful if you could confirm whether these remain or if following review of the further information you consider them to be resolved.

The further information documents have been attached.

If you also require to see a copy to the application and Environmental Statement which was consulted on the 28 August 2019 this information is available on our fileshare system [here](#)

The further information submission as well as the Environmental Statement is also available on our online public register which can be accessed via our website <https://publicregister.naturalresources.wales/> You will need to search for the

application reference CML1931 and I would advise then sorting documents by date.

If you are having difficulty accessing the documents please do not hesitate to contact me.

Kind regards

Peter Morrison

Uwch Swyddog Trwyddedu Morol / Senior Marine Licensing Officer  
Cyfoeth Naturiol Cymru / Natural Resources Wales  
Ty Cambria, Caerdydd / Cambria House, Cardiff

**Siaradwr Cymraeg**

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**Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi. Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.**

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--

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From: [Stephen\\_anstone](#)  
To: [Morrison, Peter](#)  
c: [\\_revor Harris](#)  
Subject: RE: CML1931 Marine Licence Application Holyhead Port Expansion Further Information Marine Works  
Date: 02 December 2020 0 :12:01  
Attachments: [image001. pg](#)  
[CML1931 marine works application form FINAL Redacted.pdf](#)

---

Good morning Peter,

With reference to the attached application, I can advise that Trinity House has no objections to these works. However, we would request that the following conditions are included in any marine licence issued:

- Trinity House must be informed and consulted on any alterations required to the current provision of aids to navigation, throughout the construction and operation phases of this development. As the Competent Harbour Authority and Local Lighthouse Authority for the area, Stena Line Ports Ltd should seek the prior consent/sanction from Trinity House as necessary in this regard.
- Appropriate Notices to Mariners to be promulgated in connection with these works.

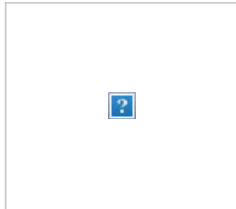
Kind regards,

**Stephen Vanstone**

Navigation Services Officer | Navigation Directorate | Trinity House

[stephen.vanstone@trinityhouse.co.uk](mailto:stephen.vanstone@trinityhouse.co.uk) | 0207 4816921

[www.trinityhouse.co.uk](http://www.trinityhouse.co.uk)



---

**From:** Morrison, Peter [<mailto:Peter.Morrison@cyfoethnaturiolcymru.gov.uk>]  
**Sent:** 21 October 2020 10:29  
**To:** [NRWlicences@thecrownestate.co.uk](mailto:NRWlicences@thecrownestate.co.uk); [DIO-Safeguarding-Offshore@mod.gov.uk](mailto:DIO-Safeguarding-Offshore@mod.gov.uk); navigation safety <[navigationsafety@mcga.gov.uk](mailto:navigationsafety@mcga.gov.uk)>; Navigation <[navigation@trinityhouse.co.uk](mailto:navigation@trinityhouse.co.uk)>; Legal Mailbox <[legal@rya.org.uk](mailto:legal@rya.org.uk)>; [biodiversity@anglesey.gov.uk](mailto:biodiversity@anglesey.gov.uk); Riley Kevin <[kevin.riley@stenaline.com](mailto:kevin.riley@stenaline.com)>; Simon Roberts <[Simon.Roberts@rspb.org.uk](mailto:Simon.Roberts@rspb.org.uk)>; [dcxpl@anglesey.gov.uk](mailto:dcxpl@anglesey.gov.uk); [planning@anglesey.gov.uk](mailto:planning@anglesey.gov.uk); [matthew.coward@gov.wales](mailto:matthew.coward@gov.wales); Gareth Edwards <[gareth.edwards@rcahmw.gov.uk](mailto:gareth.edwards@rcahmw.gov.uk)>; possible deactivated account <[marinelicensing@rcahmw.gov.uk](mailto:marinelicensing@rcahmw.gov.uk)>; Michael Igoe <[migoe@ukchamberofshipping.com](mailto:migoe@ukchamberofshipping.com)>; Robert Carington <[RCarington@ukchamberofshipping.com](mailto:RCarington@ukchamberofshipping.com)>; NATS Safeguarding <[NATSSafeguarding@nats.co.uk](mailto:NATSSafeguarding@nats.co.uk)>; Jenny Emmett <[jenny.emmett@heneb.co.uk](mailto:jenny.emmett@heneb.co.uk)>; Jim <[jim@wfa-cpc.co.uk](mailto:jim@wfa-cpc.co.uk)>; [WFMCCMPC@gov.wales](mailto:WFMCCMPC@gov.wales)  
**Subject:** CML1931 Marine Licence Application Holyhead Port Expansion Further Information

Dear Consultee,

**Marine Licence Application CML1931 Holyhead Port Expansion**

The Marine Licensing Team received an application from Stena Line Port Ltd, for a marine licence to undertake the above stated works. An initial consultation of the application and the environmental statement took place between the 28 August 2019 and the 9 October 2019.

Following consideration of consultation responses received we considered that further information was required from the applicant in order to properly consider or come to a conclusion on, the likely significant environmental effects of the project. Further information was, therefore, requested from the applicant on the 20 December 2020.

Further Information in relation to the above application has now been provided. The developer has revised the proposed scheme so that all dredge material would be disposed of offshore at Holyhead North disposal site. The developer has produced an ES addendum which presents the changes to the proposed scheme and has considered the impact of these changes. The addendum has also been produced in order to

provide further information and clarification in response to the further information request 20 December 2020. Full list of documents submitted as part of the further information submission are below;

- Marine Licence application form (2 forms provided, 1 Marine Works and 1 Dredge Application Form). *(to note the application forms dated 15 July 2019 have now been superseded by application forms dated 1 October 2020 which were provided as part of the further information submission)*
- Welsh National Marine Plan (WNMP) Assessment
- Signposting Document
- Environmental Statement (ES) Addendum

Further Information in relation to the above application has now been provided. As detailed in the attached letter we are now contacting you in order to seek your views on the application taking into account the further information which has now been submitted.

Please submit any comments you have to make within 42 days, this date being **2 December 2020**, referencing the case number CML1931.

If you do not respond by the above date we will assume you have no comment to make.

If you provided representation to the initial consultation raising concerns or objection we would be grateful if you could confirm whether these remain or if following review of the further information you consider them to be resolved.

The further information documents have been attached.

If you also require to see a copy to the application and Environmental Statement which was consulted on the 28 August 2019 this information is available on our fileshare system [here](#)

The further information submission as well as the Environmental Statement is also available on our online public register which can be accessed via our website <https://publicregister.naturalresources.wales/> You will need to search for the application reference CML1931 and I would advise then sorting documents by date.

If you are having difficulty accessing the documents please do not hesitate to contact me.

Kind regards

Peter Morrison

Uwch Swyddog Trwyddedu Morol / Senior Marine Licensing Officer  
Cyfoeth Naturiol Cymru / Natural Resources Wales  
Ty Cambria, Caerdydd / Cambria House, Cardiff

**Siaradwr Cymraeg**

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From: [Stephen\\_anstone](#)  
To: [Morrison, Peter](#)  
Subject: RE: CML1931 Marine Licence Application Holyhead Port Expansion Further Information Dredging Disposal  
Date: 02 December 2020 07: 2:2  
Attachments: [image001.pg](#)  
[CML1931 updated dredge and disposal application FINAL Redacted.pdf](#)

---

Good morning Peter,

With reference to the attached application, I can advise that Trinity House has no objections to these works. However, we would request that the following conditions are included in any marine licence issued:

- Trinity House must be informed of any alterations required to the provision of aids to navigation due to the dredging activity.
- Appropriate Notices to Mariners to be promulgated in connection with these works.

Kind regards,

**Stephen Vanstone**

Navigation Services Officer | Navigation Directorate | Trinity House

[stephen.vanstone@trinityhouse.co.uk](mailto:stephen.vanstone@trinityhouse.co.uk) | 0207 4816921

[www.trinityhouse.co.uk](http://www.trinityhouse.co.uk)



---

**From:** Morrison, Peter [<mailto:Peter.Morrison@cyfoethnaturiolcymru.gov.uk>]

**Sent:** 21 October 2020 10:29

**To:** [NRWlicences@thecrownestate.co.uk](mailto:NRWlicences@thecrownestate.co.uk); [DIO-Safeguarding-Offshore@mod.gov.uk](mailto:DIO-Safeguarding-Offshore@mod.gov.uk); navigation safety <[navigationsafety@mcga.gov.uk](mailto:navigationsafety@mcga.gov.uk)>; Navigation <[navigation@trinityhouse.co.uk](mailto:navigation@trinityhouse.co.uk)>; Legal Mailbox <[legal@rya.org.uk](mailto:legal@rya.org.uk)>; [biodiversity@anglesey.gov.uk](mailto:biodiversity@anglesey.gov.uk); Riley Kevin <[kevin.riley@stenaline.com](mailto:kevin.riley@stenaline.com)>; Simon Roberts <[Simon.Roberts@rspb.org.uk](mailto:Simon.Roberts@rspb.org.uk)>; [dcxpl@anglesey.gov.uk](mailto:dcxpl@anglesey.gov.uk); [planning@anglesey.gov.uk](mailto:planning@anglesey.gov.uk); [matthew.coward@gov.wales](mailto:matthew.coward@gov.wales); Gareth Edwards <[gareth.edwards@rcahmw.gov.uk](mailto:gareth.edwards@rcahmw.gov.uk)>; possible deactivated account <[marinelicensing@rcahmw.gov.uk](mailto:marinelicensing@rcahmw.gov.uk)>; Michael Igoe <[migoe@ukchamberofshipping.com](mailto:migoe@ukchamberofshipping.com)>; Robert Carington <[RCarington@ukchamberofshipping.com](mailto:RCarington@ukchamberofshipping.com)>; NATS Safeguarding <[NATSSafeguarding@nats.co.uk](mailto:NATSSafeguarding@nats.co.uk)>; Jenny Emmett <[jenny.emmett@heneb.co.uk](mailto:jenny.emmett@heneb.co.uk)>; Jim <[jim@wfa-cpc.co.uk](mailto:jim@wfa-cpc.co.uk)>; [WFMCCMPC@gov.wales](mailto:WFMCCMPC@gov.wales)

**Subject:** CML1931 Marine Licence Application Holyhead Port Expansion Further Information

Dear Consultee,

**Marine Licence Application CML1931 Holyhead Port Expansion**

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If you do not respond by the above date we will assume you have no comment to make.

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If you are having difficulty accessing the documents please do not hesitate to contact me.

Kind regards

Peter Morrison

Uwch Swyddog Trwyddedu Morol / Senior Marine Licensing Officer  
Cyfoeth Naturiol Cymru / Natural Resources Wales  
Ty Cambria, Caerdydd / Cambria House, Cardiff

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## Appendix B

### Sediment Dispersion Modelling Note

From: [Sarah Mar oram](#)  
To: [Reynolds, atie](#)  
c: [amie ardiner](#) [Morrison, Peter](#)  
Subject: Holyhead Port Expansion Numerical Modelling Response to Addendum Comments  
Date: 1 February 2021 17:13:00  
Attachments: [N23\\_HPE\\_Further\\_Information\\_on\\_Sediment\\_Dispersion\\_Modelling.pdf](#)

---

Hi Katie,

In response to NRW's comments on the ES Addendum requesting further information on the set up of the sediment dispersion modelling undertaken, please see the attached note.

This is submitted in advance of our formal reply to NRW's comments on the ES Addendum to allow NRW to provide further comment on the modelling and environmental assessments including coastal processes, marine water and sediment quality and fish and shellfish resource.

If you have any questions please do not hesitate to contact me.

Many thanks,

Sarah

**Sarah Marjoram BSc (Hons), MRes**  
**Environmental Consultant - Marine**

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## Note

**HaskoningDHV UK Ltd.  
Industry & Buildings**

To: Natural Resources Wales  
From: Sarah Marjoram  
Date: Friday, 12 February 2021  
Copy:  
Our reference: PB6108-RHD-ZZ-XX-NT-Z-0023  
Classification: Project related  
Checked by: Jamie Gardiner

**Subject: Holyhead Port Expansion EIA: Responses to comments on modelling presented in the ES Addendum**

---

## 1 Introduction

On the 16<sup>th</sup> December 2020, Natural Resources Wales (NRW) shared the comments received on the Holyhead Port Expansion Environmental Statement (ES) Addendum, which was submitted on the 30<sup>th</sup> September 2020.

The information provided in the ES and Addendum has now addressed the majority of comments raised; however, additional comments have been received, specifically on numerical modelling, coastal processes, benthic ecology, marine water and sediment quality, archaeology and the Water Framework Directive Compliance Assessment.

A number of the comments relating to coastal processes, stated that there was insufficient detail on the updated plume dispersion model set-up and scenario runs to be able to comment on this modelling, and on the environmental assessments that are based, in part, on the model's outputs, as follows:

- Marine and Sediment Water Quality;
- Marine and Coastal Ecology; and,
- Fish and Shellfish Resource.

This note therefore provides further information on the sediment dispersion model's set-up, validation and scenario methodology in order for NRW to provide further comment on the sediment dispersion modelling and the above environmental assessments.

## 2 Sediment Plume Dispersion Model: set up and scenario methodology

### 2.1 Model set up and scenario methodology

The sediment plume dispersion model built in MIKE3-MT is coupled with the 3D hydrodynamic model built in MIKE3-HD. The hydrodynamic model has been calibrated and validated against measured tidal elevation and ADCP data, which is described in the Holyhead Port Expansion EIA – Hydrodynamic Modelling Report (see Appendix C2 of the ES). The computational mesh of the MIKE3-MT model is

identical to the MIKE3-HD mesh described in the Holyhead Port Expansion EIA – Hydrodynamic Modelling Report (see Appendix C2 of the ES).

The key settings of the sediment plume dispersion model are

1. critical bed shear stress and sediment fall velocity;
2. 2) dispersion setting and parameters; and.
3. 3) wave condition.

The adopted critical bed shear stress and sediment fall velocity are presented in Table 3.2 of the Holyhead Port Expansion EIA – Sediment Dispersion Modelling Report (see Appendix C3 of the ES). Those values were calculated using SandCal software developed by HR Wallingford based on the Soulsby and Whitehouse method (1997).

For horizontal dispersion, we adopted the Smagorinsky formulation, which is widely used for large-scale coastal modelling. For vertical dispersion, we adopted a constant dispersion coefficient of  $0.01 \text{ m}^2/\text{s}$ , a typical dispersion coefficient for coastal water set as the default value of the MIKE3 software.

As stated in Section 3.2.3.1 of the ES Addendum, wave effects have been included in the model as an additional force, simulated using a MIKE21-SW spectral wave model coupled with the MIKE3-MT model. A 1 in 1-year wave condition was included as part of the worst-case scenario. A 1 in 1-year wave condition is considered to be the upper limit wave condition for dredging and disposal operations.

There is only one scenario simulated, i.e. the entire dredging and disposal schedule (i.e. 15 weeks) (see Table 3-12 of the ES Addendum), which was determined to be the realistic worst case for the proposed dredging and disposal activities as this creates a continuous input of suspended sediment at the dredge and disposal sites. As such, no other dredging and disposal activity scenarios were modelled. The maximum values at any time during the 15-week simulation, and hence the greatest spatial extent of suspended sediment concentrations, were captured from the model and presented in the ES Addendum to support the assessment.

## 2.2 “S-Factor”

We used the same “S-Factor” as stated in Appendix C3 of the ES. The sediment release rate was calculated from dredging production rates and the “S-Factor”. **Table 1** below presents the adopted “S-factor”, dredging production rates and sediment release rates (as presented in Appendix C3 of the ES).

**Table 1: Adopted “S-factor”, dredging production rates and sediment release rates**

|                                                                 | Backhoe (soft) | Backhoe (hard) | TSHD (inside) | TSHD (outside) |
|-----------------------------------------------------------------|----------------|----------------|---------------|----------------|
| Sediment loss rate (“S-factor”) ( $\text{kg}/\text{m}^3$ )      | 25.0           | 25.0           | 15.0          | 15.0           |
| Dredging production rates ( $\text{m}^3/\text{hr}$ )            | 735            | 336            | 1,220         | 1,220          |
| Sediment release rates during dredging ( $\text{kg}/\text{s}$ ) | 5.10           | 2.34           | 5.08          | 5.08           |

## Appendix C

### WFD Note

From: [Sarah Mar oram](#)  
To: [Reynolds, atie](#)  
c: [amie ardiner](#) [Morrison, Peter](#)  
Subject: Holyhead Port Expansion Initial Response to WFD Habitats Comments  
Date: 17 February 2021 1 :30:00  
Attachments: [N2\\_HPE\\_Response\\_to\\_NRW\\_s\\_comments\\_on\\_the\\_WFD\\_Compliance\\_Assessment.pdf](#)

---

Hi Katie,

Please see attached a note which sets out our response to NRW's comments on potential impacts to WFD habitats within the approach channel capital dredge footprint.

This note is submitted to NRW's WFD specialists to gain agreement that the information provided addresses their comments in advance of submitting our formal response to all comments received on the ES Addendum.

If you have any questions please do not hesitate to contact me.

Many thanks

Sarah

**Sarah Marjoram BSc (Hons), MRes**  
**Environmental Consultant - Marine**

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## Note

**HaskoningDHV UK Ltd.  
Industry & Buildings**

To: Natural Resources Wales  
From: Sarah Marjoram  
Date: Wednesday, 17 February 2021  
Copy:  
Our reference: PB6108-RHD-ZZ-XX-NT-Z-0023  
Classification: Project related  
Checked by: Christa Page

**Subject: Holyhead Port Expansion EIA: Responses to NRW's comments on WFD Compliance Assessment**

---

## 1 Introduction

On the 16<sup>th</sup> December 2020, Natural Resources Wales (NRW) shared the comments received on the Holyhead Port Expansion Environmental Statement (ES) Addendum, which was submitted on the 30<sup>th</sup> September 2020.

The information provided in the ES and Addendum has now addressed the majority of comments raised; however, additional comments have been received, specifically on numerical modelling, coastal processes, benthic ecology, marine water and sediment quality, archaeology and the Water Framework Directive (WFD) Compliance Assessment.

This note sets out our response to comments received from NRW on the WFD Compliance Assessment. Specifically, NRW requested further evidence to support the conclusion that the loss of approximately 1.2% of soft subtidal habitat would constitute a temporary impact.

This note has been submitted to NRW's WFD specialists to gain agreement that the information provided addresses their comments in advance of submitting our formal response to all comments received on the ES Addendum.

## 2 Response to WFD Comments

### 2.1 NRW's Headline Comment

We do not agree that the proposed 1.2% loss of habitat would constitute a "temporary impact" as no evidence of this is provided. A further WFD compliance assessment is required to ensure the Holyhead Bay coastal water body does not deteriorate or is not prevented from achieving Good Ecological Status. We require evidence of the percent of deterioration/habitat loss that would occur.

### 2.2 NRW's Detailed Comment

We do not agree that the proposed 1.2% loss of habitat would constitute a "temporary impact" as no evidence of this is provided. We remain in agreement with previous NRW advice stating that this be classed as habitat loss under the WFD. No evidence is provided that recolonisation would occur, and it is likely that opportunistic species would recolonise, meaning an irreversible loss of diversity of the water body.

A loss of diversity would constitute deterioration in the biological elements of the water body.

As the physical footprint of the activity is greater than 1%, a further WFD compliance assessment is required to ensure the Holyhead Bay coastal water body does not deteriorate or is not prevented from achieving Good Ecological Status. We require evidence of the percent of deterioration/habitat loss that would occur. Benthic invertebrates are already a vulnerable element in this water body and are currently (2015) failing, and so should be included in the detailed assessment as well as habitat, and further evidence of recolonisation (if any) is sought. Please refer to OGN72: Guidance for assessing activities and projects for compliance with the Water Framework Directive, specifically sections: 4. Detailed Compliance Assessment (p.17), 3.3.1. Hydromorphology – reference to the 1% threshold (p.13), 4.1.1. Temporary works – specifically: “If the water body does not recover to the same status as before the activity started then the activity should not be treated as temporary” (p.19), and 4.7 Application of Article 4.7 if necessary.

## 2.3 RHDHV’s Response

As discussed in the ES and ES Addendum, a small area of the approach channel capital dredge would involve the removal of the existing soft subtidal sediments to rock in order to achieve the required dredge depth (-10m CD) (see **Figure 2.1**, presented as Figure 3.8 in the ES). This area equates to 0.068km<sup>2</sup>, which represents 1.17% of the area of soft subtidal habitat within the Holyhead Bay coastal water body (calculated to be approximately 5.8km<sup>2</sup> within the water body area of 11.71km<sup>2</sup>). The area of soft subtidal sediment within the water body was calculated using habitat mapping data available on Defra’s Magic Map website<sup>1</sup> which is based on EMODnet<sup>2</sup> habitat data, the same data as that used to calculate the area of habitats within WFD water bodies.

The sediments within the proposed dredge area comprise a single biotope (*Abra alba* and *Nucula nitidosa* in circa-littoral muddy sand or slightly mixed sediment (SS.SSa.CMuSa.AalbNuc)), as recorded during the site specific survey undertaken in June 2018. Two of the characterising species of this biotope – *A. alba* and *N. nitidosa* – are both burrowing bivalves which are found buried within 5cm of the sediment surface to facilitate feeding and respiration (Sabatini and Ballerstedt, 2008; Budd, 2007). Characterising polychaete species, such as *Nephtys hombergii*, are also found in burrows and tunnels of up to 5cm beneath the sediment surface (Budd and Hughes, 2005) and *Spiophanes bombyx*, a species of bristleworm, inhabits a stiff sandy tube which usually protrudes slightly above the surface to aid suspension feeding but can be up to 25cm in length (Ager, 2005). Therefore, a sediment depth of at least 5cm would be required for the biotope to recover.

---

<sup>1</sup> <https://magic.defra.gov.uk/MagicMap.aspx>

<sup>2</sup> <https://www.emodnet.eu/en/seabed-habitats>

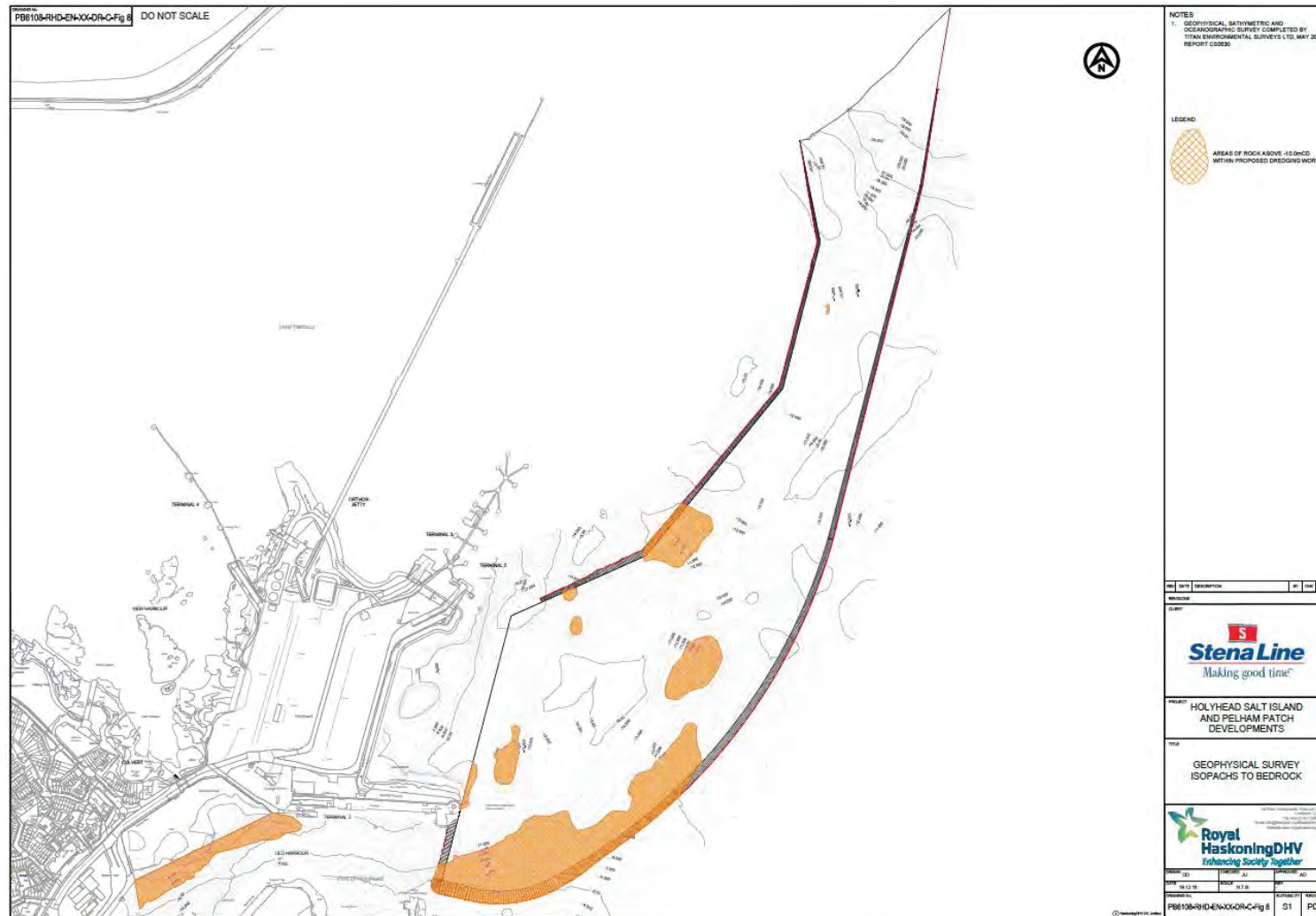


Figure 2.1 Area of rock to be dredged within the approach channel

Given the key issue here relates to the removal of the soft sediment to rock, thereby altering the habitat present, it is proposed that the areas that would be dredged to rock are dredged to a target depth of -10.1m CD. Sedimentation rates within the deeper areas dredged to rock are expected to be greater than the surrounding higher seabed as they will form traps for sediment which would accrete sediment rapidly through natural processes including bedload transport, sediment deposition and slumping. This would provide a buffer of at least 0.1m of sediment (though in reality, and given the dredging accuracy, this will likely be deeper) that would remain when maintaining the approach channel at -10m CD.

With this mitigation in place it is considered that the area of habitat change would be limited to the area of the side slopes, as sediment is less likely to accumulate in these areas. The area of the side slopes required for the approach channel is 0.012km<sup>2</sup> which represents only 0.02% of the soft subtidal habitat within the water body.

Once sufficient depth of sediment has accumulated, species of the SS.SSa.CMuSa.AalbNuc biotope from the surrounding area would be able to recolonise the dredge area. Diaz-Castaneda *et al.* (1989) experimentally investigated recolonisation sequences of the SS.SSa.CMuSa.AalbNuc biotope over a period of one year, following defaunation of the sediment in experimental containers. The abundance, total biomass and diversity of the community all increased until a maximum was reached after 20 to 24 weeks, depending on the time of year. The community within the containers matched that of the surrounding natural areas quantitatively within four to eight months depending on the availability of recruits, food supply and faunal interactions. Seasonal variations in recruitment success were noted; summer settled recruits grew very rapidly and spawned in the autumn, however autumn recruits experienced delayed growth and did not reach maturity until the following spring/summer. The experimental data suggested that *A. alba* would colonise available sediments within the year following environmental perturbation. In the worst instance, a breeding population of *A. alba* may take up to two years to fully establish. Dittman *et al.* (1999) observed that *Nephtys hombergii* (a species of polychaete worm which are characteristic of the infauna of this biotope) was included amongst the macrofauna that colonised experimentally disturbed tidal flats within two weeks of the disturbance that caused defaunation of the sediment. In addition to larval recruitment, recolonisation by polychaete worms could also occur via adult migration. Tillin and Budd (2016) conclude that it is likely that the dominant infaunal bivalve and polychaete community of the SS.SSa.CMuSa.AalbNuc biotope would recover rapidly from a disturbance and mature populations of important characterising species be present within a year.

With the provision of the mitigation measure of a -10.1m CD target dredge depth of the areas that would be dredged to rock, the previously anticipated loss of 1.17% of the lower sensitivity soft subtidal sediment habitat within the water body would be reduced to 0.02%, which is well below the 1% threshold.

Recolonisation by the SS.SSa.CMuSa.AalbNuc biotope has been shown to take between six and 12 months. Whilst a worst case of up to two years has been noted, the fact that the biotope is so prevalent in the surrounding area (as evidenced by the survey data and data available from the HABMAP project, showing that this biotope is uniform throughout Holyhead Bay), recolonisation is anticipated to be far quicker and more in line with the 6 – 12 month timeframe. Maintenance dredging is anticipated to be required every five years (ES Addendum, Section 4.2.2.2). Therefore, the area will be able to recolonise and establish for long periods between maintenance dredge campaigns.

Taking the above into account, the effect of the capital dredge on the soft subtidal habitat within the Holyhead Bay Coastal water body is considered to be temporary and is not predicted to cause a deterioration of the biological elements of the water body.

### 3 References

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Tillin, H.M. & Budd, G., (2016). [*Abra alba*] and [*Nucula nitidosa*] in circalittoral muddy sand or slightly mixed sediment. In Tyler-Walters H. and Hiscock K. (eds) *Marine Life Information Network: Biology and Sensitivity Key Information Reviews*, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 12-02-2021]. Available from: <https://www.marlin.ac.uk/habitat/detail/62>

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## Appendix D

### NRW Response to Sediment Dispersion and WFD Notes

From: [Reynolds, Katie](#)  
To: [Sarah Marjoram](#)  
Cc: [Katie Reynolds](#); [Morrison, Peter](#)  
Subject: RE: Holyhead Port Expansion Initial Response to WFD Habitats Comments  
Date: 03 March 2021 11:22:12

---

Hi Sarah,

My apologies for the delay with getting back to you, I was on leave last week.

Please find our comments on the WFD note and the sediment modelling notes below.

Response to Holyhead Port Expansion EIA: Responses to comments on modelling presented in the ES Addendum

-

- We thank the applicant for the further clarity and methodology presented on the model set-up and runs.
- We are reassured that the spatial extent results of dredge arisings are not the final modelled output that is presented but the maximum spatial footprint at various points within the 15-day modelled dredge campaign. A reference to the point within the model run where these maxima are seen would aid understanding.
- We are still unsure on the following previous comment from the ES addendum:
  - *Clarification is required over the differences in figure 3-10 (page 25) and 4-10 (page 58), they appear to have the same figure legend however the modelled output and picture is very different.*
- The s-factor confirmation was to ensure that the new dredging scenario had been modelled with updated volumes and thus quantities of overspill depending on method, location and sediment type. A lot of information was presented in the original ES regarding this element; therefore, it was a check to ensure the scenario had been updated within the addendum.
- Table 1 has the same values for TSHD inside and outside – clarification is sought on what 'inside' and 'outside' refer to.

Response to Holyhead Port Expansion ES Addendum: WFD note

- We are satisfied with the evidence provided of potential recolonisation of the sediment.
- We welcome the proposal to change the dredge depth in order to reduce loss of habitat in the WFD waterbody. We agree that with the mitigation of dredging to a target depth of -10.1m, leaving 0.1m of sediment to be recolonised, the footprint of the project would cause a change in habitat that is <1% (0.02%) and therefore a Detailed WFD Assessment is no longer required

Many thanks for the further information you provided, and if you have any questions, please let me know.

Thanks,  
Katie

---

**From:** Sarah Marjoram <Sarah.Marjoram@rhdhv.com>

**Sent:** 02 March 2021 10:20

**To:** Reynolds, Katie <katie.reynolds@cyfoethnaturiolcymru.gov.uk>  
**Cc:** Jamie Gardiner <jamie.gardiner@rhdhv.com>; Morrison, Peter <Peter.Morrison@cyfoethnaturiolcymru.gov.uk>  
**Subject:** RE: Holyhead Port Expansion - Initial Response to WFD Habitats Comments

Hi Katie,

Could you give me an update on when we can expect to receive NRW's comments on the sediment modelling and WFD notes please?

Many thanks,

Sarah

---

**From:** Sarah Marjoram  
**Sent:** 19 February 2021 10:34  
**To:** Reynolds, Katie <katie.reynolds@cyfoethnaturiolcymru.gov.uk>  
**Cc:** Jamie Gardiner <jamie.gardiner@rhdhv.com>; Morrison, Peter <Peter.Morrison@cyfoethnaturiolcymru.gov.uk>  
**Subject:** RE: Holyhead Port Expansion - Initial Response to WFD Habitats Comments

Hi Katie,

Many thanks for confirming this has been passed on to the WFD specialist.

We are not planning on submitting any other notes in advance of our formal response, with the exception of the water quality note. This is dependent on when we receive the data from NRW and how much time that leaves to produce the note, for your specialists to review it and for us to take into account any comments in our formal response which is due on the 31<sup>st</sup> March.

If you could do any chasing from your side to make sure we receive the data in a timely fashion I would be grateful.

Once we receive the data I will let you know when we plan to submit the water quality note, to help manage the specialist's time.

Many thanks

Sarah

---

**From:** Reynolds, Katie <katie.reynolds@cyfoethnaturiolcymru.gov.uk>  
**Sent:** 18 February 2021 16:46  
**To:** Sarah Marjoram <Sarah.Marjoram@rhdhv.com>  
**Cc:** Jamie Gardiner <jamie.gardiner@rhdhv.com>; Morrison, Peter <Peter.Morrison@cyfoethnaturiolcymru.gov.uk>  
**Subject:** RE: Holyhead Port Expansion - Initial Response to WFD Habitats Comments

Hi Sarah,

Thanks for this. I have passed this on to the WFD specialist and we will endeavour to get comments back to you as soon as we can, we are just pushed for capacity right now with staff working reduced hours. Just out of interest, are you submitting any other response notes (apart from the water quality one) in advance of the formal response? Just so I have an idea.

Many thanks,  
Katie

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**From:** Sarah Marjoram <[Sarah.Marjoram@rhdhv.com](mailto:Sarah.Marjoram@rhdhv.com)>  
**Sent:** 17 February 2021 18:30  
**To:** Reynolds, Katie <[katie.reynolds@cyfoethnaturiolcymru.gov.uk](mailto:katie.reynolds@cyfoethnaturiolcymru.gov.uk)>  
**Cc:** Jamie Gardiner <[jamie.gardiner@rhdhv.com](mailto:jamie.gardiner@rhdhv.com)>; Morrison, Peter <[Peter.Morrison@cyfoethnaturiolcymru.gov.uk](mailto:Peter.Morrison@cyfoethnaturiolcymru.gov.uk)>  
**Subject:** Holyhead Port Expansion - Initial Response to WFD Habitats Comments

Hi Katie,

Please see attached a note which sets out our response to NRW's comments on potential impacts to WFD habitats within the approach channel capital dredge footprint.

This note is submitted to NRW's WFD specialists to gain agreement that the information provided addresses their comments in advance of submitting our formal response to all comments received on the ES Addendum.

If you have any questions please do not hesitate to contact me.

Many thanks

Sarah

**Sarah Marjoram BSc (Hons), MRes**  
**Environmental Consultant - Marine**

T +44 151 243 9272 | E [sarah.marjoram@rhdhv.com](mailto:sarah.marjoram@rhdhv.com) | W [www.royalhaskoningdhv.com](http://www.royalhaskoningdhv.com)  
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## Appendix E

### SeDiChem Consultation with NRW

From: [Sarah Marjoram](#)  
To: [Reynolds, Katie](#)  
Cc: [Jamie Gardiner](#)  
Subject: RE: Holyhead Port Expansion Addendum Comments  
Date: 22 January 2021 10:07:00  
Attachments: [Impact of sediment disturbance on chemical status - summary.pdf](#)  
[Impact of sediment disturbance on chemical status - technical report.pdf](#)

---

Hi Katie,

I have attached the information we have received from the EA on the SeDiChem tool.

The tool allows the user to input sediment analysis data, baseline WQ data of the water body, for heavy metals, PAHs and TBT which have EQS values, and the net flux flow within the water body undertakes a calculation on the amount of partitioning of the chemical from the sediment and provides the amount of sediment which would need to be suspended at which there would be an exceedance of the EQS. We can then compare this to the model output and plume behaviour to say whether an exceedance would occur, where and for how long. Inputting the baseline data for the water body is important as if the water body is already failing an EQS for certain chemicals this is accounted for in the calculation.

Another option would be to undertake coarser volume calculations which use CIRIA guidelines to inform sediment release from the worst case dredging activity (total volume released in one day) and assumes all chemicals in the sediment are released into the water body (so no partitioning and very precautionary) and then compare it to the volume of water in the water body.

For both the SeDiChem and volume calculation we would need the baseline water quality data for the water body in order to understand how much headroom there is to the EQS. The SeDiChem tool provides a finer understanding of the behaviour of the sediment bound chemicals within the plume, and the CIRIA volume calculations would provide a coarser understanding of the worst case potential impact to the water body as a whole.

I would be grateful if the team would let me know which method they would prefer me to use to answer their question. Please let me know if they have any further questions.

Many thanks,

Sarah

---

**From:** Reynolds, Katie <katie.reynolds@cyfoethnaturiolcymru.gov.uk>  
**Sent:** 21 January 2021 17:09  
**To:** Sarah Marjoram <Sarah.Marjoram@rhdhv.com>  
**Cc:** Jamie Gardiner <jamie.gardiner@rhdhv.com>  
**Subject:** RE: Holyhead Port Expansion Addendum Comments

Hi Sarah,

Would you be able to provide further information on this tool so we can understand its suitability to the site and application? What would the alternative be if SeDiChem was not used?

Thanks,  
Katie

---

**From:** Sarah Marjoram <[Sarah.Marjoram@rhdhv.com](mailto:Sarah.Marjoram@rhdhv.com)>  
**Sent:** 21 January 2021 10:25  
**To:** Reynolds, Katie <[katie.reynolds@cyfoethnaturiolcymru.gov.uk](mailto:katie.reynolds@cyfoethnaturiolcymru.gov.uk)>  
**Cc:** Jamie Gardiner <[jamie.gardiner@rhdhv.com](mailto:jamie.gardiner@rhdhv.com)>  
**Subject:** Holyhead Port Expansion Addendum Comments

Dear Katie,

Pete Morrison has passed your email to me as we wish to confirm our approach for responding to comments received on the Addendum on the topic of water quality. In particular the comment which requests us to demonstrate *“that contaminant partitioning from suspended sediment (i.e. sediment-bound to dissolved in the water column) will not result in an issue to water quality. Potential uplift should be compared to respective Environmental Quality Standards (EQS).”*

In order to respond to this comment we propose to use the Environment Agency’s new SeDiChem tool which uses baseline water quality data, the sediment contamination data from the project and modelled SSC results to show at what concentration of SSC an exceedance of the EQS within the water body would occur.

I would be grateful if your water quality specialist would confirm this approach is acceptable, and if so provide the most recent water quality data for the Holyhead Bay coastal water body.

Many thanks in advance for your help.

Kind regards,

Sarah

**Sarah Marjoram BSc (Hons), MRes**  
**Environmental Consultant - Marine**

T +44 151 243 9272 | E [sarah.marjoram@rhdhv.com](mailto:sarah.marjoram@rhdhv.com) | W [www.royalhaskoningdhv.com](http://www.royalhaskoningdhv.com)  
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From: [Reynolds, Katie](#)  
To: [Sarah Marjoram](#)  
Cc: [Jamie Gardiner](#)  
Subject: RE: Holyhead Port Expansion Addendum Comments  
Date: 16 February 2021 16:30:01

---

Hi Sarah,

We have consulted with ABPmer about using the SeDiChem tool, and we can confirm we would be happy for this tool to be used to address the comments on water quality, and in particular, the comment: *"that contaminant partitioning from suspended sediment (i.e. sediment-bound to dissolved in the water column) will not result in an issue to water quality. Potential uplift should be compared to respective Environmental Quality Standards (EQS)."*

It would also be useful for us if you would be able to demonstrate whether the uplift of sediment would be of such small scale, and short-lived, that it would not materially influence the chemical objectives of the water body.

With regards to the data, we do have the most recent Holyhead Bay coastal water body water quality data, but this needs to be requested by emailing our Data distribution team: email is [datadistribution@cyfoethnaturiolcymru.gov.uk](mailto:datadistribution@cyfoethnaturiolcymru.gov.uk). If you could provide as much information as possible in the email to them, that would help speed things up.

Many thanks,  
Katie

---

**From:** Sarah Marjoram <[Sarah.Marjoram@rhdhv.com](mailto:Sarah.Marjoram@rhdhv.com)>  
**Sent:** 01 February 2021 10:13  
**To:** Reynolds, Katie <[katie.reynolds@cyfoethnaturiolcymru.gov.uk](mailto:katie.reynolds@cyfoethnaturiolcymru.gov.uk)>  
**Cc:** Jamie Gardiner <[jamie.gardiner@rhdhv.com](mailto:jamie.gardiner@rhdhv.com)>  
**Subject:** RE: Holyhead Port Expansion Addendum Comments

Hi Katie,

Would you be able to let us know when to expect confirmation on this from your water quality specialists please?

Many thanks,

Sarah

---

**From:** Reynolds, Katie <[katie.reynolds@cyfoethnaturiolcymru.gov.uk](mailto:katie.reynolds@cyfoethnaturiolcymru.gov.uk)>  
**Sent:** 21 January 2021 17:09  
**To:** Sarah Marjoram <[Sarah.Marjoram@rhdhv.com](mailto:Sarah.Marjoram@rhdhv.com)>  
**Cc:** Jamie Gardiner <[jamie.gardiner@rhdhv.com](mailto:jamie.gardiner@rhdhv.com)>  
**Subject:** RE: Holyhead Port Expansion Addendum Comments

Hi Sarah,

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Thanks,  
Katie

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**From:** Sarah Marjoram <[Sarah.Marjoram@rhdhv.com](mailto:Sarah.Marjoram@rhdhv.com)>  
**Sent:** 21 January 2021 10:25  
**To:** Reynolds, Katie <[katie.reynolds@cyfoethnaturiolcymru.gov.uk](mailto:katie.reynolds@cyfoethnaturiolcymru.gov.uk)>  
**Cc:** Jamie Gardiner <[jamie.gardiner@rhdhv.com](mailto:jamie.gardiner@rhdhv.com)>  
**Subject:** Holyhead Port Expansion Addendum Comments

Dear Katie,

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In order to respond to this comment we propose to use the Environment Agency’s new SeDiChem tool which uses baseline water quality data, the sediment contamination data from the project and modelled SSC results to show at what concentration of SSC an exceedance of the EQS within the water body would occur.

I would be grateful if your water quality specialist would confirm this approach is acceptable, and if so provide the most recent water quality data for the Holyhead Bay coastal water body.

Many thanks in advance for your help.

Kind regards,

Sarah

**Sarah Marjoram BSc (Hons), MRes**  
**Environmental Consultant - Marine**

T +44 151 243 9272 | E [sarah.marjoram@rhdhv.com](mailto:sarah.marjoram@rhdhv.com) | W [www.royalhaskoningdhv.com](http://www.royalhaskoningdhv.com)  
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## Appendix F

### Further Time Series Plots

Two further time series plots for surface SSCs are presented below to further illustrate when the maximum concentrations are recorded and provide further detail on the length of time these maximum concentrations are present for. **Figure F1** shows the location of where the time series plots were extracted.

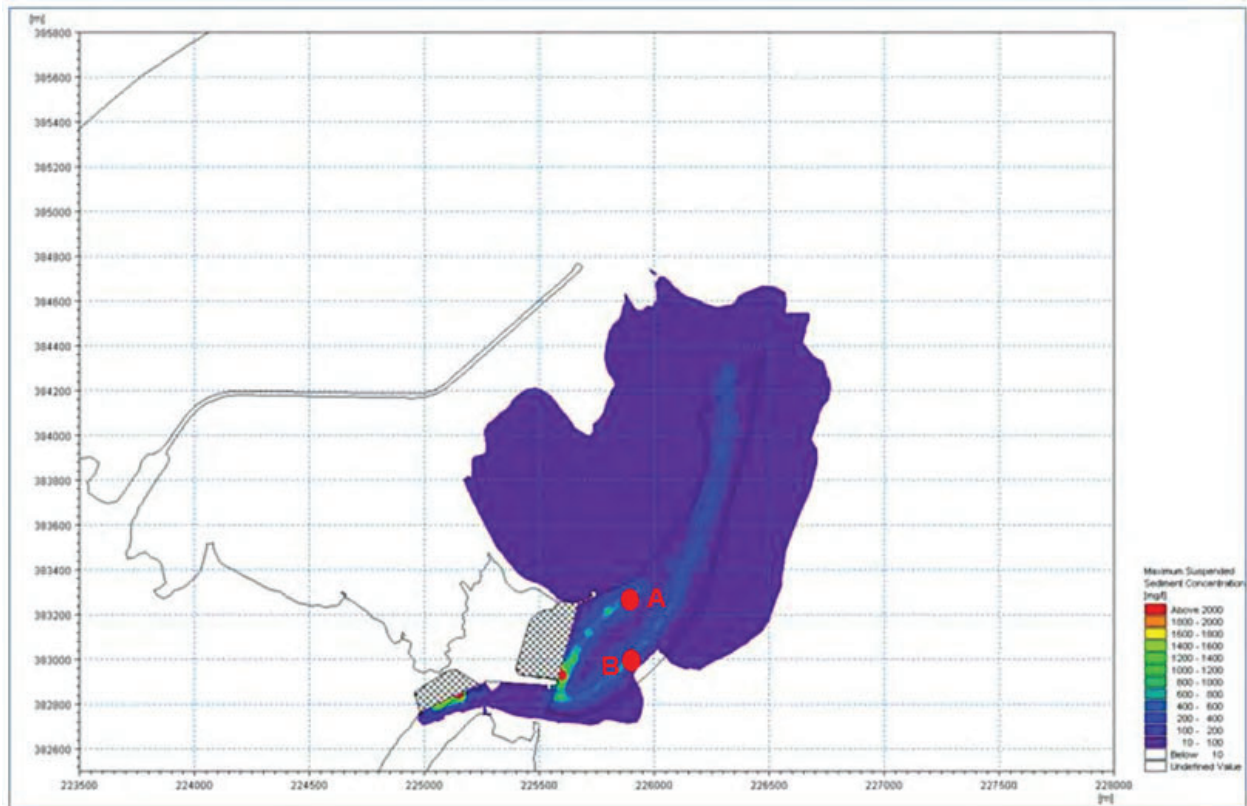


Figure F1 Location of time series plots A and B within the dredger path

**Figures F2 and F3** show the time series plots from locations A and B respectively. The plots indicate that the maximum SSCs are experienced over less than an hour and, for the vast majority of the dredging activity, are below background levels. The average SSC over the entire dredging schedule (15 weeks) at location A is predicted to be 3.37mg/l and at location B is 3.21mg/l.

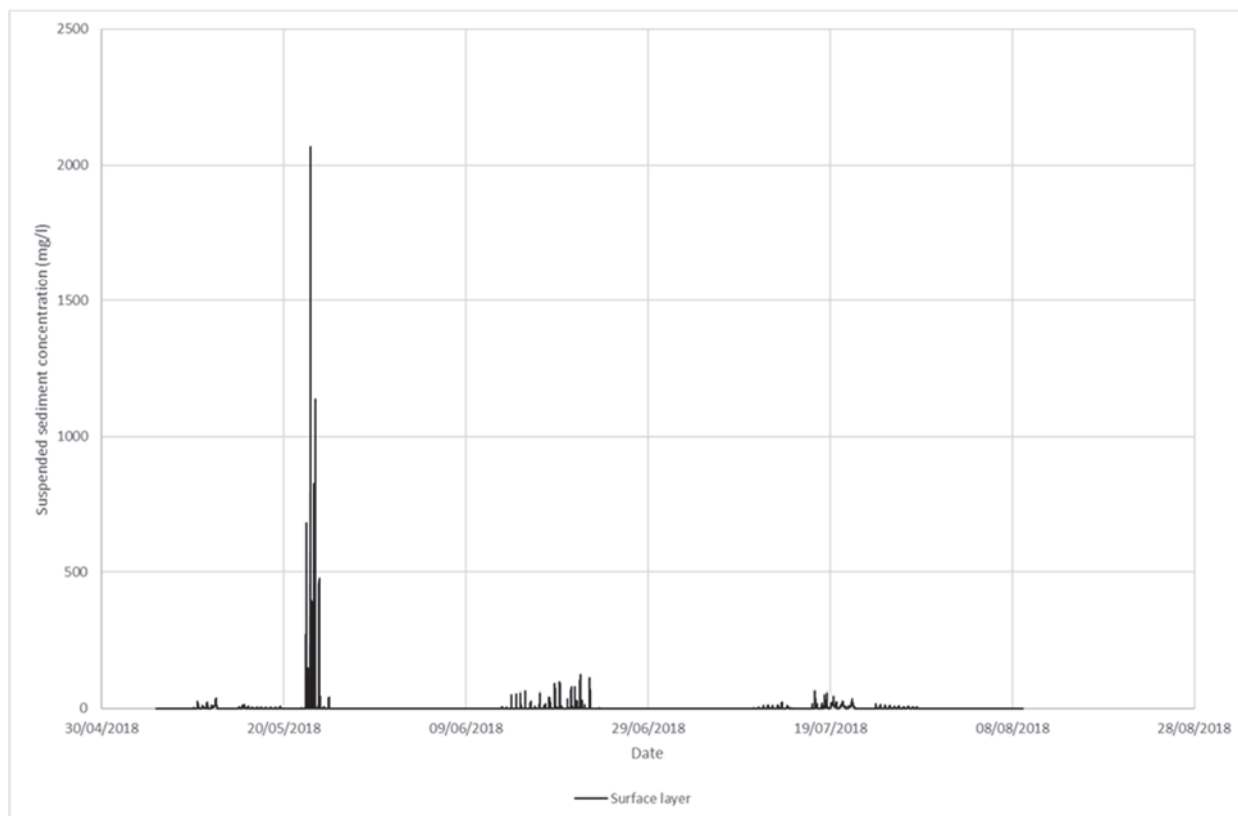


Figure F2 Time series plot for surface SSCs at location A

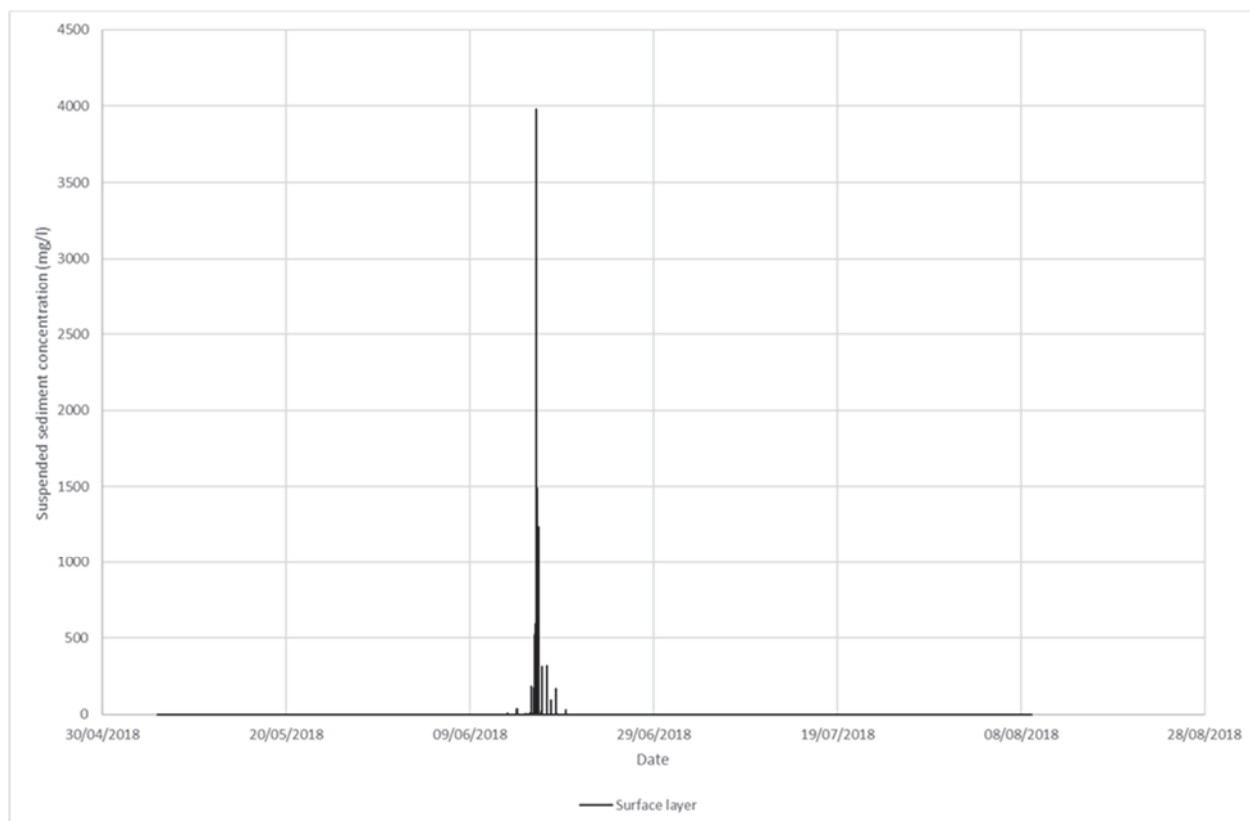


Figure F3 Time series plots for surface SSCs at location B