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CYNGOR GWYNEDD COUNCIL

Review of Revised Dredging Campaign Durations

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CYNGOR GWYNEDD COUNCIL

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Review of Revised Dredging Campaign Durations

Technical Note

Author	Tessa McCormack
Technical Reviewer	Eloïse Boblin
Project Manager	Eloïse Boblin
Authoriser	Emma Langley

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SUMMARY

This technical note has been prepared by Intertek Metoc (Intertek) to review whether revisions to the anticipated durations of both the corrective maintenance dredging campaign and future annual maintenance dredging campaigns at Pwllheli Harbour materially alter the conclusions presented within the Habitats Regulations Assessment (HRA) Screening and Report to Inform Appropriate Assessment (RIAA), and the Water Framework Directive (WFD) Assessment, prepared in support of the Marine Licence Application (MLA).

The review considers an increase in the estimated duration of the corrective maintenance dredging campaign from approximately 44 days to up to 98 days, based on updated production rate estimates provided by the contractor. Future annual maintenance dredging campaigns are anticipated to involve dredge volumes of approximately 10,000 m^3 to 20,000 m^3 over durations of up to 34 days. The total corrective maintenance dredge volume remains unchanged at 60,000 m^3, and there are no changes to the dredge footprint, disposal location, dredging or disposal methodology, sediment characteristics, or identified environmental receptors.

The sediment dispersion modelling study assessed disposal of the full 60,000 m^3 dredge volume and therefore represents the maximum design scenario (MDS) considered for the dredging and disposal project. The revised 98-day programme would distribute the same volume of material over a longer period and would therefore result in a lower average daily dredging and disposal rate than that assessed within the modelling study. Similarly, future annual maintenance dredging campaigns would involve substantially lower dredging and disposal rates than those assessed within the environmental assessments. Consequently, the suspended sediment concentration (SSC), sediment deposition levels, and spatial extent of associated effects are not expected to exceed those predicted by the sediment dispersion modelling study.

A review of the HRA Screening and RIAA confirms that the revised dredging durations do not introduce any new impact pathways or alter the assessment conclusions. The conclusions relating to Annex I habitat features, Annex II diadromous fish and associated freshwater features, ornithological features and Annex II marine mammal features remain unchanged. Whilst the revised programme may overlap periods when certain qualifying Special Protection Area (SPA) bird features are present within the wider area, the assessment did not rely on the seasonal absence of qualifying species. Consequently, the identified impact pathways, magnitude of effects and spatial extent of potential impacts remain unchanged.

The review also confirms that the revised dredging durations do not alter the conclusions of the WFD Assessment. The proposed works, sediment volumes, dredge footprint, disposal arrangements and impact pathways remain unchanged from those previously assessed, and no new impacts have been identified in relation to WFD quality elements or Protected Areas.

Overall, the revised campaign durations represent a refinement of the construction programme. There is no change in project scale, dredging intensity, environmental footprint or impact pathways. No new impact pathways have been identified, and the conclusions of the sediment dispersion modelling study, HRA Screening and RIAA, and WFD Assessment remain valid. It is therefore concluded that the revised dredging campaign durations would not result in any new or materially different environmental effects from those previously assessed.

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GLOSSARY

HRA
Habitats Regulations Assessment

INNS
Invasive non-native species

MDS
Maximum design scenario

MLA
Marine Licence Application

RIAA
Report to Inform Appropriate Assessment

SAC
Special Area of Conservation

SPA
Special Protection Area

SSC
Suspended Sediment Concentration

TBT
Tributyltin

WFD
Water Framework Directive

ZOI
Zones of influence

1. INTRODUCTION

This technical note has been prepared by Intertek Metoc (Intertek) to review whether revisions to the anticipated durations of the corrective dredging campaign and future annual maintenance dredging campaigns at Pwllheli Harbour materially alter the conclusions presented within the Habitats Regulations Assessment (HRA) Screening and Report to Inform Appropriate Assessment (RIAA) and Water Framework Directive (WFD) Assessment, both of which were informed by the findings of the sediment dispersion modelling study prepared in support of the Marine Licence Application (MLA).

The sediment dispersion modelling study assessed the disposal of up to 60,000 m^3 of dredged sediment arising from the corrective maintenance dredging campaign over an approximately 44 day period (Intertek, 2026a). The findings of the sediment dispersion modelling study were used to define the scale, magnitude and extent of sediment-related effects considered within the environmental assessments.

Following further consideration of operational constraints, plant productivity, weather dependency and likely working methods, it is now considered that the corrective maintenance dredging campaign may extend over a period of approximately 98 days. Based on revised production estimates provided by the Contractor, this equates to an average dredging and disposal rate of approximately 600 m^3/day. Applying the same indicative production rate, future annual maintenance dredging campaigns are anticipated to require approximately 17 days for a 10,000 m^3 dredge campaign and up to approximately 34 days for a 20,000 m^3 dredge campaign.

These revised durations are longer than those modelled within the sediment dispersion modelling study and therefore correspond to lower average daily dredging and disposal rates than previously assessed (Intertek, 2026a). The revisions represent a change to the anticipated campaign durations rather than the scale of dredging activity, and do not result in an increase in dredging intensity, sediment loading or the spatial extent of dredging-related effects.

1.1 Purpose of this Review

The revised campaign durations described above represent longer operational periods than those assessed within the sediment dispersion modelling study and consequently lower average daily dredging and disposal rates than previously assessed (Intertek, 2026a).

The corrective maintenance dredging campaign remains the maximum design scenario (MDS) assessed, involving the largest dredge volume and associated sediment disposal quantity. Future annual maintenance dredging campaigns would involve substantially lower dredge volumes than the corrective dredging and are therefore not expected to generate sediment-related effects exceeding those assessed for the corrective maintenance dredging campaign.

Therefore, this review has been prepared to determine whether the revised dredging campaign durations alter the sediment-related effects identified by the sediment dispersion modelling study and, in turn, materially affect the conclusions of the HRA Screening and RIAA (Section 3) (Intertek, 2026b) and WFD Assessment (Section 4) (Intertek, 2026c).

2. REVIEW OF PROJECT PARAMETERS

Table 2-1 compares the assessed scenario with the revised anticipated operational programme. The principal change relates to the anticipated durations of the corrective maintenance dredging campaign and future annual maintenance dredging campaigns.

Table 2-1 Comparison of Assessed and Revised Scenarios

Parameter	Assessed Scenario	Revised Scenario
Total dredged volume	60,000 m^3	60,000 m^3
Total disposed volume	60,000 m^3	60,000 m^3
Dredge footprint	No change	No change
Disposal location	No change	No change
Sediment characteristics	No change	No change
Disposal methodology	No change	No change
Campaign duration (corrective maintenance dredge)	Approximately 44 days	Approximately 98 days
Annual maintenance dredging programme	Approximately 8 days	Approximately 17 days (10,000 m^3 campaign) to approximately 34 days (20,000 m^3 campaign)

Note: The corrective maintenance dredging campaign represents the MDS assessed, involving a total dredged volume of 60,000 m^3. Future annual maintenance dredging campaigns would involve substantially lower dredge volumes (10,000 m^3 to 20,000 m^3) and would not be expected to result in sediment-related effects exceeding those assessed for the corrective maintenance dredging campaign.

The sediment dispersion modelling study assumed that the corrective dredging campaign would be completed over approximately 44 days (Intertek, 2026a). This represented a conservative and precautionary assessment scenario, as the total dredged volume of 60,000 m^3 was assumed to be dredged and disposed over a shorter period, resulting in higher average daily dredging and disposal rates than those anticipated under the revised programme. The revised campaign duration of approximately 98 days reduces average daily dredging and disposal rates, and no changes have been made to dredge volumes, dredging locations, disposal locations, dredging methods, or sediment characteristics. Accordingly, the revised programme is not expected to result in sediment-related effects exceeding those assessed within the modelling study (Intertek, 2026a).

3. HRA SCREENING AND RIAA

3.1 Background

The HRA Screening and RIAA identified the principal impact pathways associated with dredging and disposal activities as (Intertek, 2026b):

- Smothering and siltation rate changes;
- Physical change (to another sediment type);
- Changes in suspended solids (water clarity);
- Transition elements and organo-metal (e.g. tributyltin (TBT)) contamination;
- Introduction or spread of invasive non-native species (INNS);
- Barrier to species movement; and
- Underwater noise changes.

The HRA Screening and RIAA concluded that the predicted effects would be temporary, localised and reversible and that the dredging and disposal activities would not affect the integrity of any European site, either alone or in combination with other plans or projects (Intertek, 2026b). This review therefore considers whether the revised durations of the corrective maintenance dredging campaign and future annual maintenance dredging campaigns alter the magnitude, duration or significance of any of the impact pathways previously assessed.

3.2 Assessment of Revised Dredging Campaign Durations

The primary environmental parameters governing the magnitude of effects arising from the proposed dredging and disposal activities are:

- Total sediment volume;
- Sediment characteristics;
- Disposal location;
- Disposal footprint;
- Deposition thickness; and
- Resulting suspended sediment concentration (SSC).

None of these parameters change as a result of the revised campaign duration. The total quantity of sediment dredged and disposed remains unchanged at 60,000 m^3. Similarly, the location of the dredging and disposal activities, sediment characteristics and the receiving environment remain unchanged.

The sediment dispersion modelling study assessed disposal of the full 60,000 m^3 dredge volume over an approximately 44 day campaign (Intertek, 2026a). The revised programme would distribute the same volume of material over an approximately 98 day period and would therefore result in a lower average daily dredging and disposal rate than that assessed within the modelling study. Future annual maintenance dredging campaigns are anticipated to involve substantially lower dredge volumes (10,000 m^3 to 20,000 m^3) than the corrective dredging, over durations of approximately 17 to 34 days. As such, the corrective maintenance dredging campaign remains the MDS assessed, with future annual maintenance dredging campaigns not expected to exceed the sediment disturbance associated with the corrective maintenance dredging campaign.

Although the revised programme may extend the period over which dredging and disposal activities occur, it would not increase the total sediment loading entering the receiving environment. Therefore, the magnitude or spatial extent of predicted SSC or sediment deposition effects are not expected to exceed those assessed within the sediment dispersion modelling study (Intertek, 2026a). Similarly, the revised programme is not expected to cause greater sediment deposition depths, a larger deposition footprint, higher peak SSC, or more extensive sediment-related effects than those predicted by the sediment dispersion modelling study (Intertek, 2026a).

Therefore, the revised dredging campaign durations represent a refinement of the operational programme rather than a change in project scale or environmental footprint. The corrective maintenance dredging campaign remains the MDS assessed, and future annual maintenance dredging campaigns are not expected to result in effects exceeding those previously assessed.

3.3 Sediment Dispersion Modelling Study

The HRA Screening and RIAA utilised the outputs of the sediment dispersion modelling study (Intertek, 2026a) to identify the extent of predicted SSC and sediment deposition effects and to define the relevant Zones of Influence (ZoIs) for assessment.

As the revised dredging campaign durations represent no change to the total dredge volume, disposal volume, sediment characteristics, disposal location or disposal methodology, consideration has been given to whether these revisions could materially alter either the predicted SSC footprint or sediment deposition footprint on which the HRA Screening and RIAA conclusions were based (Intertek, 2026b).

3.3.1 Suspended Sediment Concentration

The revised campaign durations do not alter:

- Predicted SSC or the spatial extent of the SSC footprint; or
- The conclusions of the sediment dispersion modelling study.

The revised programme would distribute the same volume of dredged material over a longer period and at a lower average disposal rate than that assumed within the sediment dispersion modelling study (Intertek, 2026a). As a result, there is no reason to expect SSC levels or the spatial extent of the SSC footprint to exceed those previously assessed. The conclusions of the sediment dispersion modelling study therefore remain valid for both the corrective maintenance dredging campaign and future annual maintenance dredging campaigns (Intertek, 2026a).

Furthermore, future annual maintenance dredging campaigns would involve substantially lower dredge volumes than the corrective maintenance dredging campaign and are therefore not expected to generate SSC effects exceeding those assessed within the sediment dispersion modelling study (Intertek, 2026a). Therefore, the conclusions relating to SSC effects presented within the HRA Screening and RIAA remain unchanged (Intertek, 2026b).

3.3.2 Smothering and Siltation Rate Changes

The revised campaign durations do not alter:

- Predicted sediment deposition depths or the extent of the sediment deposition footprint; or
- The conclusions of the sediment dispersion modelling study.

The total quantity of sediment entering the receiving environment remains unchanged. The revised programme would distribute the same volume of material over a longer period and at a lower average disposal rate than that assumed within the sediment dispersion modelling study (Intertek, 2026a). Likewise, future annual maintenance dredging campaigns would involve lower dredge volumes and

sediment disposal quantities than the corrective maintenance dredging campaign and would therefore remain within the assessed range of sediment deposition effects.

As deposition is influenced by total sediment volume, sediment characteristics and local hydrodynamic conditions, the revised dredging campaign durations are not expected to result in increased sediment accumulation, greater deposition thicknesses or a larger deposition footprint than that previously assessed. The assessment therefore remains consistent with the conclusion that deposited material would continue to be subject to natural redistribution and reworking processes within Abererch Bay (Intertek, 2026b), and the significance of sediment deposition and smothering effects remains unchanged for both the corrective maintenance dredging campaign and future annual maintenance dredging campaigns.

3.4 Sensitive Receptors

3.4.1 Annex I Habitat Features

The HRA Screening and RIAA identified qualifying Annex I habitat features of the Pen Llŷn a'r Sarnau Special Area of Conservation (SAC), including the 'Mudflats and sandflats not covered by seawater at low tide' (1140) feature, which includes the Porthdinllaen seagrass meadow (Intertek, 2026b). The revised dredging campaign durations do not alter:

- Predicted SSC or the spatial extent of the SSC footprint;
- Predicted sediment deposition depths or the extent of the sediment deposition footprint;
- The potential for physical change to seabed sediments;
- The potential for remobilisation and dispersion of sediment-bound contaminants; or
- The assessment of habitat sensitivity or the impact pathways identified within the HRA Screening and RIAA.

Although dredging and disposal activities may occur over a longer period, the nature, magnitude and spatial extent of the effect remain unchanged. Predicted effects continue to comprise temporary and reversible changes in SSC and sediment deposition. No new pathways have been identified through which the revised programme could adversely affect qualifying Annex I habitats or the conservation objectives of the designated sites considered within the HRA Screening and RIAA. Therefore, the conclusions of the assessment remain unchanged (Intertek, 2026b).

3.4.2 Annex II Diadromous Fish and Associated Freshwater Features

The HRA Screening and RIAA identified Atlantic salmon (*Salmo salar*), sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*) and associated freshwater features through the regional migratory fish screening approach (Intertek, 2026b). The revised dredging campaign durations do not alter:

- Underwater noise sources, underwater noise levels or the assessment of potential barriers to species movement;
- Predicted SSC or the spatial extent of the SSC footprint;
- The potential for remobilisation and dispersion of sediment-bound contaminants; or
- The impact pathways identified within the HRA Screening and RIAA.

The corrective maintenance dredging campaign would involve the same sediment volume being dredged and disposed of over a longer period and, therefore, at a lower average daily rate than assessed within the sediment dispersion modelling study (Intertek, 2026a). Future annual maintenance dredging campaigns would involve substantially lower dredge volumes than the

corrective dredging and are therefore not expected to generate effects exceeding those previously assessed. Therefore, no new impact pathways have been identified, and the conclusions of the assessment for Annex II fish features remain unchanged.

3.4.3 Ornithological Features

The revised duration of the corrective maintenance dredging campaign may result in works overlapping periods when certain qualifying Special Protection Area (SPA) bird features are present within the wider area, including both wintering/non-breeding waterbirds and breeding seabirds. Subsequent annual maintenance dredging campaigns are anticipated to take place between 1st October and 1st May and therefore do not introduce any change to the seasonal timing previously considered within the assessment.

The revised dredging campaign durations have therefore been reviewed against the qualifying bird features screened into the original assessment. This review confirmed that no sites or features were screened out on the basis of seasonal absence, and that the revised programme does not alter the identified source-pathway-receptor relationships.

The HRA Screening and RIAA included qualifying bird features within the assessment where a credible source-pathway-receptor relationship was identified via temporary increases in SSC and associated indirect effects on prey availability and foraging habitat (Intertek, 2026b). The assessment did not rely on assumptions that qualifying species would be absent during the operational period. Therefore, the revised dredging campaign durations do not alter:

- Predicted SSC or the spatial extent of the SSC footprint;
- The magnitude of predicted changes in prey availability and foraging conditions;
- The extent of habitat available to qualifying SPA bird features; or
- The impact pathways identified within the HRA Screening and RIAA.

Whilst dredging and disposal activities may occur over a longer period, the affected area remains a very small proportion of the available foraging habitat and prey resource available to qualifying SPA bird features. Furthermore, the revised campaign duration does not alter the magnitude or spatial extent of the effects assessed within the HRA Screening and RIAA. Therefore, no new impact pathways have been identified, and the conclusions of the ornithological assessment remain unchanged (Intertek, 2026b).

3.4.4 Annex II Marine Mammal Features

The revised dredging campaign durations are not expected to materially alter the conclusions of the marine mammal assessment presented within the HRA Screening and RIAA (Intertek, 2026b).

Qualifying Annex II marine mammal features, including harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncatus*) and grey seal (*Halichoerus grypus*), are considered capable of occurring within the wider area throughout the year and were not assessed on the basis of seasonal absence. The revised dredging campaign durations do not alter:

- Underwater noise sources, underwater noise levels or the spatial extent of potential disturbance effects;
- Predicted SSC or the spatial extent of the SSC footprint through which indirect effects on prey availability and foraging behaviour were assessed;
- The potential for remobilisation and dispersion of sediment-bound contaminants;
- The assessment of potential barriers to species movement; or
- The impact pathways identified within the HRA Screening and RIAA.

The same dredging and disposal activities would occur within the same footprint and using the same methodology as assessed previously. The corrective maintenance dredging campaign remains the MDS assessed, while future annual maintenance dredging campaigns would involve substantially lower dredge volumes. Therefore, no increase in the magnitude or spatial extent of effects on Annex II marine mammal features is anticipated. No new impact pathways have been identified, and the conclusions of the marine mammal assessment remain unchanged (Intertek, 2026b).

3.5 Conclusion

The revised dredging campaign durations do not alter the basis of the assessment presented within the HRA Screening and RIAA. The following remain unchanged:

- Total dredge volume;
- Total disposal volume;
- Predicted SSC or the spatial extent of the SSC footprint;
- Predicted sediment deposition depths or the extent of the sediment deposition footprint;
- Identified ecological receptors;
- Qualifying European sites taken forward for assessment; and
- Impact pathways identified within the HRA Screening and RIAA.

A review of the HRA Screening and RIAA has confirmed that the revised dredging campaign durations do not alter the conclusions of the sediment dispersion modelling study on which the HRA Screening and RIAA are based (Intertek, 2026a). The corrective maintenance dredging campaign remains the MDS assessed, involving the largest dredge volume and associated sediment disposal quantity. Future annual maintenance dredging campaigns would involve substantially lower dredge volumes than the corrective dredging and are therefore not expected to result in sediment-related effects exceeding those previously assessed. The revised programme represents a refinement of the operational programme only and does not alter the predicted magnitude or spatial extent of SSC or sediment deposition effects.

Whilst the revised duration of the corrective maintenance dredging campaign may increase the temporal overlap between dredging activities and periods when certain qualifying SPA bird features are present, the HRA Screening and RIAA did not rely upon seasonal absence in reaching its conclusions and no change to the predicted magnitude, spatial extent or significance of effects has been identified (Intertek, 2026b). The impact pathways and the magnitude and spatial extent of effects remain unchanged, and the conclusions of the ornithological assessment therefore remain valid. No new impact pathways have been identified and no changes to the assessment methodology, site screening process or Appropriate Assessment conclusions are required.

Therefore, the revised dredging campaign durations are not considered to materially alter the findings of the HRA Screening and RIAA (Intertek, 2026b). The conclusion that the Project would not adversely affect the integrity of any European site, either alone or in combination with other plans or projects, remains valid.

4. WFD ASSESSMENT

4.1 Background

The WFD assessment considered whether the proposed dredging and disposal activities could:

- Cause deterioration in waterbody status;
- Cause deterioration in individual quality elements; or
- Prevent achievement of WFD objectives.

The WFD Assessment considered four relevant waterbodies: Tremadog Bay, Erch Estuary, Cardigan Bay North and Glaslyn Estuary (Intertek, 2026c). These waterbodies were identified as having the potential to be affected by dredging and disposal activities based on the findings of the sediment dispersion modelling study (Intertek, 2026a).

The assessment considered the potential for changes in SSC, sediment deposition, contaminant resuspension and associated effects on relevant biological, physico-chemical and hydromorphological quality elements. Based on the sediment dispersion modelling outputs (Intertek, 2026a), any effects were predicted to be localised and temporary in nature and would not result in deterioration of waterbody status, deterioration of any individual quality element or prevention of WFD objectives (Intertek, 2026c).

Accordingly, the WFD Assessment concluded that the proposed dredging and disposal activities would not result in deterioration of any relevant waterbody and would not prevent achievement of WFD objectives (Intertek, 2026c).

4.2 Assessment of Revised Dredging Campaign Durations

The revised dredging campaign durations do not alter:

- Dredged quantities;
- Disposal quantities;
- Sediment characteristics;
- Disposal methodology;
- Disposal location; or
- The water bodies assessed within the WFD Assessment.

The principal change is that the same volume of dredged material would be dredged and disposed of over a longer operational period and therefore at a lower average daily rate than that assumed within the sediment dispersion modelling study (Intertek, 2026a).

The corrective maintenance dredging campaign remains the MDS assessed. Future annual maintenance dredging campaigns would involve substantially lower dredge volumes and sediment disposal quantities than the corrective dredging and are therefore not expected to result in sediment-related effects exceeding those assessed for the corrective maintenance dredging campaign.

The WFD Assessment is based primarily on the magnitude, spatial extent and reversibility of predicted changes in SSC, sediment deposition and contaminant resuspension. As discussed in Sections 3.3.1 and 3.3.2, the revised dredging campaign durations do not alter:

- Predicted SSC or the spatial extent of the SSC footprint; or
- Predicted sediment deposition depths or the extent of the sediment deposition footprint.

The original assessment concluded that impacts on fish and benthic communities associated with increased SSC, sediment deposition and contaminant resuspension would be temporary and would not affect waterbody status. Whilst the operational period is increased, the total volume of sediment affected remains unchanged and therefore no increase in the magnitude or spatial extent of these effects is anticipated.

Similarly, the temporary resuspension of sediment-bound contaminants, including nickel, lead and zinc previously identified above Cefas Action Level 1 thresholds, would remain localised and temporary. The revised programme does not increase the quantity of contaminants present within the dredged sediments and therefore does not alter the conclusions of the original chemical assessment.

The revised duration of the corrective maintenance dredging campaign may increase the potential for a limited overlap with the bathing water season. Annual maintenance dredging campaigns are expected to take place outside the bathing water season and are therefore not expected to overlap with this period. However, only part of the corrective maintenance dredging campaign would be expected to coincide with the bathing water season. Any increases in suspended sediment concentrations and associated reductions in water clarity would be temporary and localised. These changes are not expected to adversely affect bathing water quality, which is determined principally by microbiological parameters, nor results in deterioration of any WFD quality element or prevent achievement of WFD objectives. While temporary changes in water clarity may be perceptible to bathers in the immediate vicinity, these effects will be short-term and are not expected to materially affect recreational use of bathing waters. Where necessary, temporary signage can be provided to inform beach users of ongoing dredging activities and the expected duration of any localised increases in turbidity.

Therefore, the environmental parameters assessed within the WFD Assessment remain unchanged. No additional impacts have been identified in relation to biological, hydromorphological or physico-chemical quality elements. Accordingly, the revised dredging campaign durations represent a refinement of the operational programme only and do not alter the conclusions of the WFD Assessment.

4.3 Conclusion

The revised dredging campaign durations do not materially alter the conclusions of the WFD Assessment. The corrective maintenance dredging campaign remains the maximum design scenario (MDS) assessed, whilst future annual maintenance dredging campaigns would involve substantially lower dredge volumes and sediment disposal quantities and are therefore not expected to result in sediment-related effects exceeding those previously assessed. The Project would continue to:

- Avoid deterioration in waterbody status;
- Avoid deterioration of individual quality elements; and
- Avoid preventing achievement of WFD objectives.

A review of the WFD Assessment has confirmed that the revised dredging campaign durations do not alter the dredged quantities, disposal quantities, sediment characteristics, disposal methodology, disposal location or impact pathways previously assessed. Furthermore, the revised programme does not alter the predicted magnitude or spatial extent of SSC, sediment deposition or contaminant resuspension effects.

Therefore, the environmental parameters underpinning the WFD Assessment remain unchanged and no additional impacts have been identified in relation to biological, hydromorphological or physico-chemical quality elements. Similarly, the revised programme does not alter the conclusions of the

original chemical assessment, as no increase in the quantity of contaminants present within the dredged sediments is anticipated.

The revised duration of the corrective maintenance dredging campaign may increase the potential for a limited overlap with the bathing water season. However, any associated reductions in water clarity or increases in SSC would remain temporary and localised to the dredging and disposal areas and would not result in deterioration of any WFD quality element, adversely affect bathing water quality, or prevent achievement of WFD objectives.

Therefore, the revised dredging campaign durations do not materially alter the conclusions of the WFD Assessment. The proposed dredging and disposal activities are not expected to result in deterioration of waterbody status within the assessed waterbodies (Tremadog Bay, Erch Estuary, Cardigan Bay North and Glaslyn Estuary), deterioration of individual quality elements, or prevention of WFD objectives. No additional WFD assessment is considered necessary, and the conclusions of the original WFD Assessment therefore remain valid. The Project is expected to remain compliant with the requirements of the Water Environment (Water Framework Directive) Regulations.

5. CONCLUSION

This technical review has considered the implications of revised dredging campaign durations for both the corrective maintenance dredging campaign and future annual maintenance dredging campaigns. The review confirms that:

- The total dredge volume remains unchanged at 60,000 m^3;
- The total disposal volume remains unchanged;
- Disposal locations remain unchanged;
- Sediment characteristics remain unchanged;
- Identified ecological and WFD receptors remain unchanged;
- Predicted SSC footprints remain unchanged;
- Predicted sediment deposition footprints remain unchanged; and
- No new impact pathways have been identified.

The revised programme durations for both the corrective maintenance dredging campaign and future annual maintenance dredging campaigns represent lower average daily dredging and disposal rates than those assessed within the environmental assessments. The corrective maintenance dredging campaign is anticipated to require approximately 98 days to dredge and beneficially dispose of up to 60,000 m^3 of sediment, whilst future annual maintenance dredging campaigns are anticipated to require approximately 17 to 34 days for annual dredge volumes of 10,000 m^3 to 20,000 m^3. Accordingly, the corrective maintenance dredging campaign remains the MDS assessed, and future annual maintenance dredging campaigns are not expected to result in sediment-related effects exceeding those previously assessed.

The revised durations represent a refinement of the anticipated operational programme rather than a change to the nature, scale or environmental footprint of the Project. Whilst the duration of active dredging and disposal activities may increase, the same volume of sediment would be dredged and disposed of over a longer period and at a lower average daily rate than that assessed within the sediment dispersion modelling study (Intertek, 2026a). Consequently, the predicted magnitude and spatial extent of suspended sediment concentration (SSC), sediment deposition and associated sediment-related effects remain unchanged.

A review of qualifying SPA bird features confirmed that, whilst the revised duration of the corrective maintenance dredging campaign may increase the potential for overlap with periods when certain qualifying SPA bird features are present, the impact pathways, magnitude of effects and spatial extent of impacts remain unchanged. Furthermore, the HRA Screening and RIAA did not rely on assumptions regarding seasonal absence of qualifying species. Consequently, the conclusions of the HRA Screening and RIAA remain valid (Intertek, 2026b).

Similarly, a review of the WFD Assessment confirmed that the revised dredging campaign durations do not alter the environmental parameters underpinning the assessment, including predicted SSC, sediment deposition and contaminant resuspension effects. No additional impacts have been identified in relation to biological, hydromorphological or physico-chemical quality elements, and the conclusions of the WFD Assessment remain valid (Intertek, 2026c). Although the revised duration of the corrective maintenance dredging campaign may result in a limited overlap with the bathing water season, the predicted increases in SSC and any associated reductions in water clarity would remain localised and temporary and would not alter the conclusions of the assessment. No effects on bathing water quality objectives are anticipated.

It is therefore concluded that the revised dredging campaign durations do not materially alter the conclusions of the HRA Screening and RIAA (Intertek, 2026b) or the WFD Assessment (Intertek, 2026c). The Project would continue not to adversely affect the integrity of any European site, either alone or in combination with other plans or projects, and would not result in deterioration of waterbody status, deterioration of individual quality elements or prevention of WFD objectives. No further assessment is considered necessary.

REFERENCES

1 Intertek (2026a) 'Pwllheli Harbour Dredge Plume Modelling'. Document Reference: P2843_R6952_Rev0.

2 Intertek (2026b) 'HRA Screening and Report to Inform Appropriate Assessment (RIAA)'. Document Reference: P2843_R7011_Rev1.

3 Intertek (2026c) 'Water Framework Directive (WFD) Assessment'. Document Reference: P2843_R7016_Rev1.

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Intertek Metoc
ESPA House
1 The Millennium Centre
Farnham
Surrey GU9 7XX
United Kingdom

intertek.com/metoc

