

<b>Project:</b>	Port of Cork ORE Enhancement Works						
<b>Client</b>	Port of Cork Company						
<b>Subject</b>	Maritime Usage Licence Application – Water Framework Directive						
<b>Appendix</b>	4.5						
<b>Orig. by</b>	JW	<b>Appr. by</b>	BS	<b>Date</b>	31/03/2026	<b>Doc. Ref:</b>	CORE1-AYE-RE-XX-TN-MA-0213

## 4.5 Water Framework Directive

### 4.5.1 Legislation Context

The Water Framework Directive (WFD) (2000/60/EC) is a substantial piece of water legislation with the main purpose being to establish a framework for the protection and sustainable use of the water environment. The Directive sets Environmental Objectives for all surface waters (rivers, transitional lakes and coastal waters) at the water body scale, the effective unit of management and monitoring defined under the WFD. The Objectives, set out in Article 4 of the Directive, include the prevention of deterioration of Ecological Status within the water body.

Article 4(7) outlines exemptions from these objectives including an exemption for: *“Deterioration or failure to achieve good status/potential as a result of new modifications to the physical characteristics of a surface water body or alterations to the level of bodies of groundwater, or status deterioration of a body of surface water from high status to good status as a result of new sustainable human development activities”*. These exemptions would require an Article 4(7) Test to be done, in accordance with the Common Implementation Strategy Document No. 35 of 2017.

WFD requires regular examination of the biological, chemical and hydromorphological status of all waterbodies in the European Union. Under the WFD, a waterbody must receive high status in biology, chemistry and hydromorphology is it is to be considered a of High Ecological Status. If all other quality elements are at high status, but hydromorphological status is not high, then a waterbody is classified as Good Ecological Status (GES), rather than High.

In heavily modified water bodies (HMWB) the hydromorphological or physical character of the water body cannot be restored sufficiently to support Ecological Status, without impacting on the specified use. As a result, these water bodies are set an alternative environmental objective of *‘Good Ecological Potential’*, this is the best ecological condition they can achieve allowing for the fact that their hydromorphology has been modified to facilitate the specified use.

However, heavily modified water bodies are still expected to meet the required standards for all the other water quality elements, such as physicochemical conditions, nutrients, specified pollutants and chemicals. Typically, the ecology of a HMWB is altered because the physical habitat has changed significantly. For example, where a significant impoundment is constructed on a river the habitat upstream can be more similar to a lake or a pond. Therefore, the ecology changes in response. Measures are also required to mitigate the impacts on hydromorphology to the greatest extent possible given the specified use.

The objectives of the WFD are:

- To prevent deterioration in the ecological status/potential of the waterbody
- To prevent the introduction of impediments to the attainment of Good WFD status for the waterbody
- To ensure that the attainment of the WFD objectives for the waterbody are not compromised
- To ensure the achievement of the WFD objectives in other waterbodies within the same catchment are not permanently excluded or compromised.

#### 4.5.1 Waterbodies of Concern

The proposed borehole and marine environmental investigation works will be occurring within the coastal waterbody IE\_SW\_060\_0000 (Cork Harbour), and <1km from the transitional waterbody IE\_SW\_060\_0750 (Lough Mahon). Both waterbodies are currently under consultation regarding their designation as Heavily Modified Waterbodies (HMWBs), arising out of the 2024 Water Action Plan (Department of Housing, Local Government and Heritage, 2025). The designation comes from their specified use as navigational waters.

The waterbodies are associated to two main Natura 2000 Sites, the *Cork Harbour SPA* and the *Great Island Channel SAC*.

Reporting Period	Waterbody	Ecological Status or Potential	Chemical Surface Water Status	Associated Natura 2000 Sites
2007-2009	Cork Harbour	Moderate	Not available	The Cork Harbour SPA.  The Great Island Channel SAC.
	Lough Mahon	Good	Not available	
2010-2012	Cork Harbour	Good	Not available	
	Lough Mahon	Moderate	Not available	
2010-2015	Cork Harbour	Good	Good	
	Lough Mahon	Moderate	Good	
2013-2018	Cork Harbour	Moderate	Good	
	Lough Mahon	Moderate	Good	
2016-2021	Cork Harbour	Moderate	Failing to achieve good status	
	Lough Mahon	Moderate	Failing to achieve good status	
2019-2024	Cork Harbour	Good	Not available	
	Lough Mahon	Moderate	Not available	

Both waterbodies have a risk projection of 'at risk'.

## 4.5.2 Compliance Assessment

The potential risks of the proposed works have been considered in relation to each of the following supporting elements for coastal waters:

Biological Quality Elements	Hydromorphological Quality Elements	Physico-chemical and Chemical Quality Elements
Phytoplankton status	Depth variation	Transparency
Invertebrate status	Structure and substrate of the coastal bed	Thermal conditions
	Structure of the intertidal zone	Oxygenation conditions
	Direction of dominant currents	Salinity
	Wave exposure	Nutrient condition
		Specific Pollutants
		Priority Substances and Hazardous Priority Substances

### WFD Biological Quality Elements:

- **Phytoplankton:** Although there would be some very minor and localised increases in suspended sediment levels, they would be temporary and would not be expected to have any notable effect on phytoplankton assemblages present. Phytoplankton are transported with tidal currents and would only be expected to be subject to elevated levels of suspended sediments for relatively short periods. Any effects of the works on phytoplankton are anticipated to be negligible and would not affect WFD status.
- **Invertebrates:** The risk of sedimentation associated with the borehole and marine environmental investigation is minor. Overall, the surrounding biota will experience some degree of stress and temporary and localised community disruption associated with elevated turbidity levels, however the programme and mitigation measures will limit this exposure. Therefore, the works will not impact significantly on the biological elements or prevent the achievement of good ecological status/potential of the biological elements in the waterbody.
- **Fish:** As above.

### WFD Hydromorphological Quality Elements:

- **Depth Variation:** The investigation works would not have effect on depth.
- **Structure and Substrate of the Coastal Bed:** The investigation works would have very small-scale and localised effects on benthic substrates at the investigation sites but would not affect the structure and substrate of the coastal bed at the scale of the WFD waterbody.
- **Structure of the Intertidal Zone:** As above.
- **Direction of Dominant Currents:** Current flow patterns and the direction of dominant currents will not be affected by the investigation works.
- **Wave Exposure:** Characteristic wave exposure of the area will not be affected by the investigation works.

### WFD Physico-chemical and Chemical Quality Elements:

- Transparency: The investigation works would have very minor, localised and temporary effects on transparency, but it would not prevent the achievement of good physico-chemical and chemical quality status.
- Thermal Conditions: The investigation works would not have any effects on thermal conditions.
- Oxygenation Conditions: The investigation works are unlikely to cause effect to oxygen levels in the water column.
- Salinity: The investigation works will not cause fluctuations in the salinity levels of the water.
- Nutrient Condition: The investigation works are unlikely to cause effect to nutrient levels in the water column.
- Specific Pollutants (ecological status): The investigation works could have localised and temporary effects on concentrations of specific pollutants in the water column, depending on levels of contamination within the study area sediments. However, given that the very small footprint of sediment disturbance planned at each borehole/investigation site, the amount of potential pollutant to be released from the sediment will be very minor in scale and will be rapidly diluted in the water column. Therefore, it would unlikely cause affect to the WFD status.
- Priority substances and Priority hazardous substances (chemical status): As above.

Environmental mitigation has been incorporated into the investigation works design, which follow generic best practice to mitigate the impacts of the proposed works on the ecological environment. Namely, adherence to CIRIA (2015) Environmental Good Practice on Site, adherence to a Construction Environmental Management Plan (CEMP) and appropriate use of equipment. The Natura Impact Statement (NIS) prepared for these proposed works, sets out specific mitigation for the protection of surface water.

Taking into consideration the impact of the investigation works on hydromorphology, biology and water quality elements, and following the implementation of design and mitigation measures, it can be concluded that it will not compromise progress towards achieving Good Ecological Potential (GEP) or cause a deterioration of the overall status of Cork Harbour or Lough Mahon. It also will not compromise the qualifying features of protected areas. It can therefore be concluded that the investigation works are fully compliant with WFD.