



# Assessments of Impacts of the Marine Usage (AIMU)

Ringaskiddy Capital Dredging Off-shore Disposal

Report No. C56/0981-MA-R001

03 March 2025

Revision 01

[Port of Cork Company](#)



## Document Control

### Project

Ringaskiddy Capital Dredging Off-shore Disposal

### Client

Port of Cork Company

### Document

Assessments of Impacts of the Marine Usage (AIMU)

### Report Number:

C56/0981-MA-R001

### Document Checking:

Date	Rev	Details of Issue	Prepared by	Checked by	Approved by
28 February 2025	00	Issued for Review	DM	CM	POC
03 March 2025	01	Issue to Client	DM	CM	POC

**Disclaimer:** Please note that this report is based on specific information, instructions, and information from our Client and should not be relied upon by third parties.



[www.ayesa.com/en](http://www.ayesa.com/en)

# Contents

<b>[1] Introduction.....</b>	<b>1</b>
<b>[2] Project Description .....</b>	<b>2</b>
[2.1] Project Location .....	4
[2.2] Scope of Works .....	5
<b>[3] Need and Alternatives .....</b>	<b>6</b>
<b>[4] Planning and Development .....</b>	<b>7</b>
<b>[5] Impacts .....</b>	<b>8</b>
[5.1] Land and Soils .....	8
[5.2] Water .....	8
[5.3] Biodiversity.....	8
[5.4] Fisheries and Aquaculture .....	9
[5.5] Air Quality .....	10
[5.6] Noise and Vibration .....	10
[5.7] Landscape/Seascape .....	11
[5.8] Traffic and Transport (including navigation) .....	11
[5.9] Cultural Heritage (including underwater archaeology) .....	12
[5.10] Population and Human Health.....	12
[5.11] Major Accidents and Disasters .....	12
[5.12] Climate.....	13
[5.13] Waste.....	13
[5.14] Material Assets .....	13
[5.15] Interactions .....	14
<b>[6] Summary of Mitigations .....</b>	<b>15</b>
<b>[7] Consideration and Reasoned Conclusions in relation to the:.....</b>	<b>16</b>
[7.1] EIA Directive .....	16
[7.2] Water Framework Directive .....	17
[7.3] Marine Strategy Framework Directive .....	17

<b>[8] References .....</b>	<b>20</b>
<b>Appendix A: RFP Sediment Plume Investigation .....</b>	<b>22</b>
<b>Appendix B: Herring Spawning Bed Locations .....</b>	<b>23</b>
<b>Appendix C: NMPF Policies .....</b>	<b>24</b>

## List of Figures

Figure 2-1: Location of proposed dredging sites within Cork Harbour.....	2
Figure 2-2: Location of the Off-shore Disposal Site relative to Ringaskiddy .....	3
Figure 3-1: Hierarchy for prioritising dredge material (DM) management (Sheehan, 2010). ....	6
Figure A-1: Average total suspended sediment concentration (SSC) at the Off-shore Disposal Site during the capital dredging operations (RPS, 2024b).....	22

## List of Tables

Table 2-1: Total quantities disposed of at the Cork Harbour licensed Off-shore Disposal Site. ....	4
Table 2-2: Licensed Off-shore Disposal site coordinates. ....	4
Table 7-1: Descriptors under the MSFD. ....	18
Table C-1: NMPF policies compliance assessment. ....	24

## [1] Introduction

Ayesa has been appointed by the Port of Cork Company (POCC) to carry out an Assessment of Impact on Maritime Usage (AIMU) for the Disposal at Sea (DaS) activities involved in the capital dredge campaign in the Ringaskiddy Basin. This AIMU aims to, as part of the application for a Maritime Usage License (MUL), facilitate the assessment by the Marine Area Regulatory Authority (MARA) of the potential impacts associated with disposal of uncontaminated dredged material at sea. An analysis of the likely impacts (positive and negative) of the dumping activities is included in this report.

## [2] Project Description

POCC is seeking a MUL for the disposal of uncontaminated dredged material in the Ringaskiddy Basin, to a maximum of 423,217 m<sup>3</sup> at an existing licensed Off-shore Disposal Site. Dredged material volumes from Area A and B, depicted in Figure 2-1, are 375,355 m<sup>3</sup> and 47,862 m<sup>3</sup> respectively. The Off-shore Disposal Site is shown in Figure 2-2.

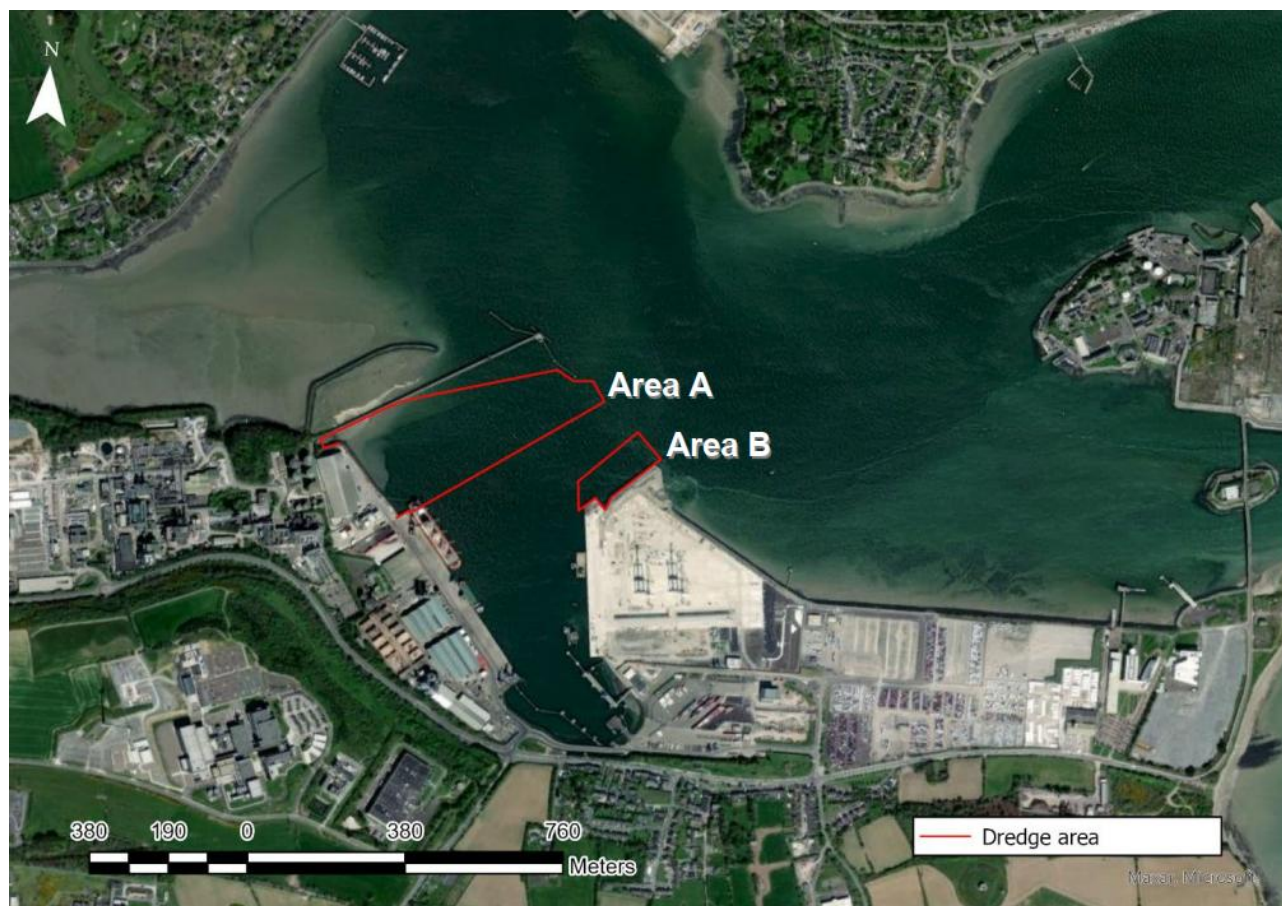
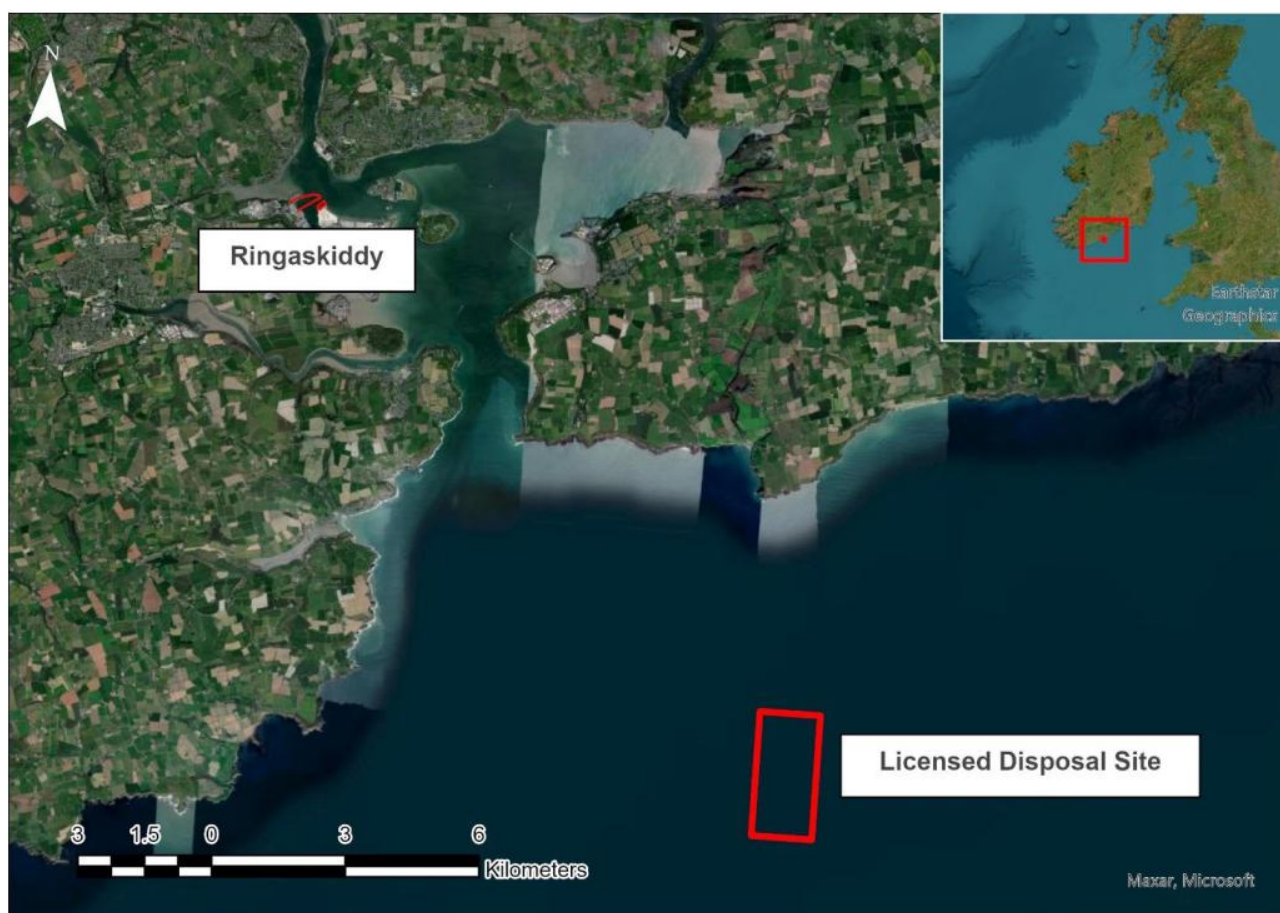


Figure 2-1: Location of proposed dredging sites within Cork Harbour.





**Figure 2-2: Location of the Off-shore Disposal Site relative to Ringaskiddy .**

The current licensed Off-shore Disposal Site has been used by the Port of Cork for disposal since 1978 in accordance with numerous permits (Port of Cork Company, 2024). The Off-shore Disposal Site has received considerable amounts of dredged material frequently since it opened, as shown in Table 2-1. The site is well established, and the Port of Cork is not aware of any issues/concerns relating to the site since its implementation.

**Table 2-1: Material disposed of at the Cork Harbour licensed Off-shore Disposal Site (Port of Cork Company, 2024).**

Year	Volume Disposed [m <sup>3</sup> ]
1978 – 1999	6,730,000
2000	149,854
2003	373,942
2005	133,979
2008	253,848
2011	272,075
2014	214,976
2017	267,267
2018*	175,515
2019*	85,872
2020	398,460
2024	372,063
Total	9,427,851

*Note: \*Previous capital dredging at Ringaskiddy*

## [2.1] Project Location

The historical licensed Off-shore Disposal Site is located c.4.5 km south of Power Head and the mouth of Cork Harbour. The water depth on the site ranges from 25 m in the North, to 45 m in the South.

**Table 2-2: Licensed Off-shore Disposal site coordinates (Port of Cork Company, 2024).**

WGS84 Coordinates	
Latitude	Longitude
51°43.00' N	8°10.18' W
51°43.00' N	8°09.00' W
51°44.50' N	8°09.00' W
51°44.50' N	8°10.18' W

## [2.2] Scope of Works

The capital dredge works include 423,217 m<sup>3</sup> of uncontaminated dredged material to be disposed of at the licensed Off-shore Disposal Site. It is envisaged that all dredging works will be undertaken using a backhoe dredger and/or a Trailing Suction Hopper Dredger (TSHD) with a capacity not exceeding c.8,000 m<sup>3</sup>. The daily load maximum is set at c.29,376 dry tonnes.

The disposal method involves using bottom doors or a split hopper. Once the hopper is full, the vessel will navigate to the designated disposal site and reduce its speed to one to two knots. The vessel will then either open its bottom doors or split its hull to release the contents over several minutes. During this operation, the vessel moves at one to two knots within the disposal area, spreading the material to prevent accumulation in one spot. This process is repeated for each disposal operation. The vessel's master will use the on-board tracking system to select a new disposal location within the licensed area, based on previous disposal sites. This approach helps minimise the impact of excessive accumulation in any single location by utilising as much of the disposal site as possible.

An application was made to the EPA for a DAS permit (S0021-03 and S0039-01), which included a thorough investigation into the impacts of the capital dredging campaign. This AIMU accompanies the Maritime Usage License application and specifically addresses the impacts of the disposal operations at the licensed Off-shore Disposal Site.

### [3] Need and Alternatives

The provision of effective, efficient and competitive port facilities is essential to the economic vitality of the country and the South-West Region. The Port of Cork is one of two major national multi-modal ports and is the second largest port in the Republic of Ireland in turnover terms. The Port of Cork's current facilities do not have sufficient capacity to accommodate the projected increases in freight throughput (RPS, 2015).

The OSPAR Convention recognises that dredging is essential for the development of port facilities and that much of the material removed during these necessary activities requires disposal at sea. Within the OSPAR Convention framework, dredged materials have been listed in Article 3.2 of Annex II as being permitted to be dumped at sea.

However, the OSPAR Convention requires consideration of beneficial use of dredged materials over dumping at sea where possible. The OSPAR Commission's Guidelines for the Management of Dredged Material (2024) states: *"that where no beneficial or financially viable use for dredged material is available then disposal of material at sea is acceptable"*.

Prior to this license application, a review of potential alternatives was undertaken for a variety of techniques. The location and material type are indistinguishable between the Ringaskiddy West (S0039-01) and Ringaskiddy East (S0021-03) Dumping at Sea application. Many of the considerations and outcomes from the assessment herein are the same.

Potential alternatives such as prevention, re-use, recycling, processing/recovery and lastly disposal were assessed in the order of hierarchy as shown in Figure 3-1.

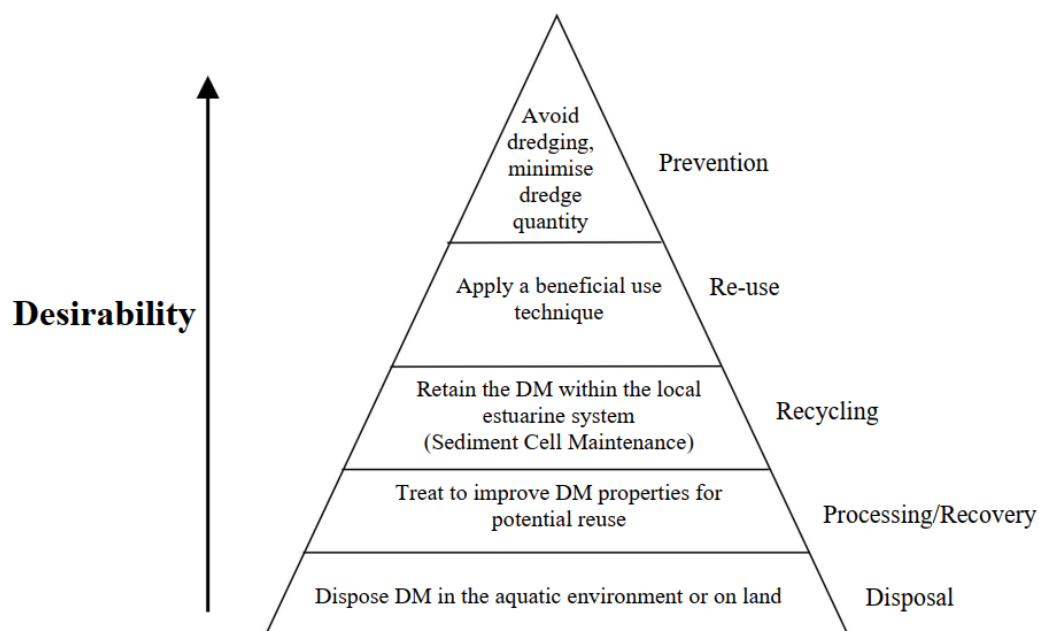


Figure 3-1: Hierarchy for prioritising dredge material (DM) management (Sheehan, 2010).

After the consideration of the alternatives, disposal at sea was determined as the best practical environmental option. The Off-shore Disposal Site provides adequate performance logistically, economically and environmentally to satisfy all the stakeholders. The full analysis of each option individually was completed and can be viewed in the DAS application (S0039-01 or S0021-03) supporting documents.

## [4] Planning and Development

The proposal for the Ringaskiddy redevelopment is consistent with European and national policy objectives. These policies emphasise the importance of high-quality transport infrastructure, including port facilities, for economic growth. Furthermore, maximising Ireland's ocean wealth and ensuring competitiveness of Ireland and Europe is also highlighted. Spatial Planning Policy documents (CASP, the 2009 County Development Plan, and 2011 Local Area Plans) identify Ringaskiddy as the preferred location for the primary expansion of port activities. The lands at Ringaskiddy are zoned for the Port of Cork's container and bulk goods facilities, an objective reinforced within the draft Cork County Development Plan 2013. The Cork City Development Plan 2009-2015 and the draft City Development Plan 2015-2021 both highlight the critical need to relocate port activities to facilitate the redevelopment of the Docklands and Tivoli. This relocation would free up the Upper Harbour for other commercial and recreational uses.

Given the context of the wider project, the separate disposal operations are integral to ensuring the timely and efficient progress of the Ringaskiddy redevelopment, thereby supporting these broader policy objectives and strategic plans.

Furthermore, the National Marine Planning Framework (NMPF) brings together all marine-based human activities for the first time. It outlines the government's vision, objectives and marine planning policies for each marine activity. All applications for development in Ireland's maritime area is considered in terms of their consistency with the objectives of the plan. A full assessment of the wider Ringaskiddy redevelopment project was conducted as part of the EIA process described in Section [7.1] and can be found in Chapter [4.2.4] of the EIAR (Port of Cork Company, 2025).

In summary:

- The NMPF recognises that ports of national significance (including the Port of Cork) are key international gateways and facilitators of economic development.
- It highlights the ongoing phased infrastructure investments at Tier 1 ports.
- The framework also acknowledges that certain primarily land-based developments and activities rely on associated marine infrastructure, which is essential for their effective operation.
- The policy framework requires that marine activities be managed in a way that protects the environment by ensuring adequate space is allocated for the growth of new or emerging industries.
- It is also an objective of the NMPF that marine based activity addresses environmental considerations.
- The wider Ringaskiddy redevelopment was found to be consistent with the objectives of the NMPF.

Furthermore, a full assessment for compliance of the disposal operations with the NMPF objectives was completed, as detailed in Table C-1 of Appendix C:.

## [5] Impacts

### [5.1] Land and Soils

A study was conducted assessing the sediment plumes generated from the dredging and disposal activities in the Ringaskiddy Basin and the Off-shore Disposal Site respectively (RPS, 2024b). Disposal activities were modelled with the assumption that operations would occur 24/7 as the worst-case scenario.

The assessment revealed that most of the sediment disposed of, remained within the designated disposal site, and beyond the Off-shore Disposal Site, the bed levels did not change more than 5 mm.

A full record of loading and disposal tracks and record of the material being disposed will be maintained for each trip. Furthermore, the Off-shore Disposal Site shall be divided into subsections, with each used sequentially. This is done to ensure that the uncontaminated dredged material is evenly dispersed at the disposal site. Additionally, no over-spilling (overflowing) from the vessels will be permitted and disposal limited to 29,376 dry tonnes per day. Thereafter, it was concluded that disposal at the Off-shore Disposal Site will not result in any long-term change to the seabed characteristics.

### [5.2] Water

In addition to the sediment deposition at the Off-shore Disposal Site, total suspended sediment concentrations (SSC) were modelled with the same assumptions as for the sediment plume deposition. Figure A-1 of Appendix A: shows that the highest SSC occur within the confines of the Off-shore Disposal Site. Outside the site, the average SSC does not exceed 3 mg/L and is quickly dispersed to 1 mg/L approximately 2 km from the disposal site.

During the Stage 1 screening, the Ballycotton Bay Special Protection Area (SPA) and Sovereign Islands SPA were identified to potentially be affected by the disposal activities (RPS, 2024a). However, sediment plume modelling revealed that the disposal activities would not have any significant impacts on either SPA due to their distances from the Off-shore Disposal Site (RPS, 2024b). Ballycotton Bay SPA is located 16 km away, and Sovereign Islands SPA is 19 km away from the licensed Off-shore Disposal Site. These distances ensure that the sediment plumes do not reach any European site.

To reduce the sediment dispersion, several mitigation measures will be applied during the dredging operation. Notably, the disposal will be carried out through the vessel's hull to reduce the dispersion of the sediment. Compliance with all mitigation measures minimised the impact and limited it to the Off-shore Disposal Site, with no long-lasting negative impacts. Furthermore, water quality monitoring of the loading areas will be undertaken at locations to be agreed with the EPA.

### [5.3] Biodiversity

Given the nature of the proposed works, it is considered that the only pathway for a likely significant effect upon habitat deterioration is due to suspended sediment and sedimentation. This suspended sediment, including silts and mud, is the principal activity posing a risk to the aquatic environment generated by the proposed dredging works.



Since the sediment plume modelling confirmed no significant impacts to the surrounding European sites, only the impacts within the Off-shore Disposal Site need to be considered. Evidence that the site does respond to the quantity of material being disposed of and does recover following disposal events can be found in the Benthic Habitats Assessment as part of the DAS License application (Aquatic Services Unit, 2020). Furthermore, the Benthic Habitats Assessment (Aquatic Service Unit, 2020) states that: *“In view of the dispersive nature of the site and the findings of previous studies which recorded similar habitats despite regular spoil disposal, it is considered that the impacts associated with the deposition of dredge spoil, following a similar pattern to previous disposal events, will be temporary and negative in nature, principally affecting the direct footprint of the disposal site, and that substantial recovery can be expected to occur within 12 to 24 months of the cessation of disposal, depending on the quantities being disposed of in any given year.”* This finding highlights the temporary nature of the negative impact, primarily affecting the disposal site’s footprint, with substantial recovery expected within 12 to 24 months after disposal ceases.

The movement of dredging vessels can impact biodiversity, primarily through potential collisions with animals. However, collisions are unlikely due to the slow speed of the dredging vessel. Dredging is unlikely to cause damage to marine mammal auditory systems, but masking and behavioural changes are possible (Todd *et al.* 2015). Sediment disturbance and any increases in turbidity are unlikely to affect marine mammals that use echolocation, or pinnipeds, since research indicates that vision is not essential to pinnipeds’ survival or ability to forage (McConnell *et al.* 1999). Leatherback turtles could be a collision risk, but the likelihood of marine turtles being in the area during disposal at sea is extremely low.

In summary, since the likelihood of collisions are low, no significant impact is expected while the impact due to the suspended sediment during disposal was found to be temporary and limited to the licensed Off-shore Disposal Site.

#### [5.4] Fisheries and Aquaculture

Details of commercial fishing in the Off-shore Disposal Site is not fully known. In the wider Celtic Sea area pollack, cod, haddock and whiting are taken by gill nets (pollack), and bottom otter trawls (cod, whiting and haddock) can be caught. While in theory all these species could also be caught in the disposal site, most of the heavier fishing activity for these species tends to be in deeper water than the disposal site (pollack and haddock). Commercial fishing can be expected to be farther off-shore or toward the south west of the Celtic Sea area off Wexford (Anon, 2019). Hake is also an important white fish in the Celtic Sea, but landings are from more off-shore waters than the disposal site. Historically, herring is the most intensively fished pelagic species in inshore waters off Cork Harbour.

The impacts to fisheries are expected to be negligible because of the very confined spread of the uncontaminated dredged material and associated turbidity in the context of the vast aerial extent of the commercial fishing activity in the Celtic Sea. The extensive seabed survey work undertaken in the wider region including the disposal site, clearly shows that the disposal site substrate mix is typical of hundreds of square kilometres off the Cork Coast. This signals that the temporary reduction of fish food at the disposal site is likely to have a negligible adverse on fish biomass in the wider area (O’Sullivan *et al.*, 2013).

Specifically for the herring spawning, there are several considerations that would suggest that the disposal operation will have negligible impact on herring recruitment. These include the current state of the spawning stock within the Celtic Sea (at its lowest for over 60 years), combined with the distance of over 5 km of the nearest and smallest spawning bed of the Daunt Spawning Area. Any effect will certainly not be measurable at the scale of the commercial catch. This is because the 2020

RPS dispersion model indicated that deposition of fines from the operation would be less than 10 mm at just 1-2 km from the disposal sites. Similarly, a previous model (RPS, 2015) predicted that beyond 4 km, deposition of fines would not be measurable. The location of the herring spawning sites nearest to the Off-shore Disposal Site can be seen in Appendix B. To further mitigate any impacts, dredging and disposal operations will also not occur during November or February as this coincides with the herring spawning seasons.

Accounting for these details, it would suggest that the port could safely dispose of the uncontaminated dredged material at the licensed Off-shore Disposal Site without endangering the Celtic Sea herring stock.

## [5.5] Air Quality

Emissions released from the additional vessels engaged in the project will be inevitable. However, these emissions contribute to a minimal increase within the overall industrial setting of the harbour, and the project's location within an operational port. Consequently, these activities' anticipated impact on air quality is not expected to be significant.

There is a relatively low potential for odour generation and nuisance to occur during the disposal operations. The potential exists where decayed organic material has the potential to release sulphurous compounds (such as H<sub>2</sub>S) or where solvent contamination is uncovered. There is a low chance that the potential sources will be released under water during the disposal operations. Low levels of organic solvents are predicted in the uncontaminated dredged material and any vapour released will quickly condense into the liquid phase and either dissolve in the water (such as water-soluble solvents i.e. alcohols) or form a residue on the water surface where not water soluble (such as aromatics). In both cases the impact on air quality is not expected to be significant, especially when considering that the disposal site is located 4.8 km to the closest point of land.

## [5.6] Noise and Vibration

The presence of a barge in the harbour will lead to increased vessel traffic and associated noise. Large vessels produce low frequency sounds and TSHD vessels and backhoe dredgers are considered large vessels. However, given the busy nature of Cork Harbour and shipping lane and the level ambient noise already experienced at this site (Sutton *et al.* 2014) the presence of an additional vessel and associated noise, is unlikely to be significant.

Marine mammals are tolerant of shipping noise, being repeatedly exposed to many vessels, small and large. Pinnipeds (commonly known as seals) also exhibit much tolerance and often haul out on man-made structures where there is considerable human activity. This exposure may lead to some chronic exposure to man-made noise, which they tolerate. In areas with repeated exposure, mammals may become habituated and therefore become less sensitive to noise and disturbance (Richardson *et al.* 1995). It was therefore concluded that dredging seems to have less effect on marine mammals than moving sound sources, although avoidance behaviour of whales exposed to high levels of activity have been documented. Reactions, when measured have only occurred when received sound levels are well above ambient levels.

According to McKeown (2016), increased noise is restricted to less than 100 m from disposal operations. Therefore, increased sound pressure associated with the disposal operation will be above ambient noise levels within a very small area (radius less than 100 m) and the impact of the increased noise levels is unlikely to be significant. Furthermore, A Marine Mammal Observer will



witness all the work in line with the Annex IV Species Risk Assessment in Appendix A of RPS (2024a), thereby further reducing the impact due to noise and vibrations.

### [5.7] Landscape/Seascape

The Regional Seascape Character Assessment for Ireland (The Marine Institute, 2020) and Ireland's Marine Atlas shows that the proposed Off-shore Disposal Site is located within the Atlantic Celtic Bays and Estuaries seascape character area. The seascape character is described by The Marine Institute (2020) as: "A complex and extensive SCA that is subject to influence of both Atlantic Ocean and Celtic Seas." Features include a series of estuaries, bays, headlands, low cliffs and beaches with a broadly consistent coastal form.

The proposed disposal activities will not significantly influence the seascape character described above and will result in no change in character. This application is also for a continuation of an existing activity.

No significant impacts are anticipated on the landscape/seascape.

### [5.8] Traffic and Transport (including navigation)

Dredging could potentially impact shipping channels and navigation by causing disruptions during dredging/disposal operations. Dredging site A borders the Cork Container Terminal whereas dredging site B borders the Cork Bulk Terminal. To safeguard the smooth flow of both land and marine traffic during the dredging works, the following measures and resources are in place:

- Before embarking, vessel operators are strongly advised to consult the online resources provided by the Port of Cork. This resource includes a real-time vessel locator map and a comprehensive shipping schedule, allowing for advanced journey planning and awareness of nearby vessels. The website can be found at <https://www.portofcork.ie/shipping-schedule/>. The harbour master will also maintain clear communication channels to facilitate safe movements.
- Given the existing high volume of traffic within the harbour, the dredging works are not expected to introduce significant disruptions to the surrounding infrastructure.
- Container vessels operating in the area and vessels transporting dredge material will be carefully coordinated. Safety protocols and clear navigation guidelines will be enforced to optimise traffic flow and minimise potential conflicts.
- Mitigation measures will include formal notices to mariners, appropriate navigation lights, and close liaison with Port authorities for timing and communication protocols. Compliance with the International Regulations for Preventing Collisions at Sea is mandatory.

A traffic management plan will be developed beforehand to ensure that the dredging project has minimal impact on both land and sea traffic within the harbour. Frequent communication with the Harbour Master during the dredging operations will be made to ensure compliance with the traffic management plan.

Therefore, there will be no significant impact on the traffic and transport in the area due to the disposal operations.

## [5.9] Cultural Heritage (including underwater archaeology)

The disposal site has been subject to repeated investigations since the late 1990s. Geophysical surveys have indicated that, despite the significant amount of material disposed on the site, it has remains largely unchanged (Haskins, 2024). National Monuments Service's Wreck Viewer includes two wreck sites on the northwest corner of the disposal site, though these have been interpreted as natural features. Notably, a geophysical anomaly has been identified just over 100 m outside the northern boundary of the site. Disposing material directly onto this anomaly has a high potential for significant negative impact. As such, an exclusion zone with an approximate radius of 250 m will be employed around the anomaly. Furthermore, an Archaeologist will witness all the work in line with recommendations within the Underwater Archaeology Impact Assessment (RPS, 2024a).

After the mitigation has been applied, there is no significant resulting impacts on the cultural heritage of the disposal site.

## [5.10] Population and Human Health

The disposal site is located c.3.7 km outside the limits of Cork harbour and c.4.8 km from the closest point of land. The area sits within the approaches to the harbour in c.25 m to 50 m water depth. The only activity that could potentially affect third parties (i.e. marine users) is the transit of the TSHD to the licensed Off-shore Disposal Site. As mentioned in Chapter [5.8] this potential traffic risk is minor and can effectively be managed by the port authorities as part of their normal marine traffic management responsibilities. A local communication plan will be established to ensure that any issues that arise will be managed promptly. Noise and air quality impacts are discussed above and are found to have a negligible effect on human health.

Considering the nature and location of the disposal works, no other significant impacts e.g., noise, dust, on population and human health are expected from the disposal activities.

## [5.11] Major Accidents and Disasters

The potential for major accidents or disasters associated with the disposal operations is considered to be low. There is a risk involved with any vessel activity in the marine environment that a pollution incident might arise and result in spills or leaks of polluting substances into the water. There is potential for pollution events to occur from discharges from vessels using the port (ballast water, wastewater, oil spillages, fuel bunkering). Several safeguards and preventative measures will be in place to minimise risks, including:

- Competent Contractor: The project will be undertaken by a suitably qualified and experienced Contractor with a demonstrated safety and environmental compliance track record and holding adequate marine insurance.
- Risk Assessment and Mitigation (RAMS): Prior to the commencement of works, the Contractor will develop detailed Risk Assessment and Mitigation Strategies (RAMS) addressing potential hazards. These RAMS will be subject to review and approval by the Client's Representative. Potential risks that will be considered include collisions, equipment failure, or accidental release of pollutants.
- A documented Accident Prevention Procedure will be put in place prior to commencement.
- A documented Emergency Response Procedure will be put in place prior to commencement.

Given the implementation of these preventative measures, the selection of a competent Contractor, and the oversight of relevant authorities, the risk of major accidents and disasters due to the disposal operations is deemed negligible.

## **[5.12]Climate**

Carbon emissions can be expected by the dredging vessels (TSHD or backhoe dredger). However, the carbon emissions of these vessels in comparison to the normal port operational emissions can be considered negligible as mentioned in Chapter [5.5].

Furthermore, disposal at sea was recommended due to the lower emissions and overall costs compared to land-based transport. Off-shore extraction and emission costs are estimated to be less than 50% of land based quarrying activities (Port of Cork Company, 2024). Furthermore, a 5000t TSHD transports the equivalent of 250 trucks which results in Off-shore transport costs being 85% lower than the land-based counterparts (Port of Cork Company, 2024). Disposing of the uncontaminated dredged material at sea would mean that no land-based transport is needed, reducing the carbon emissions of the transport.

Considering that the impacts of the disposal activities would have negligible effect on the climate and disposing at sea was considered the best practical environmental option, the disposal activity is deemed not to have a significant effect.

## **[5.13]Waste**

The total amount of material to be dredged in the Ringaskiddy basin is a maximum of 423,217 m<sup>3</sup>. A material analysis was conducted to determine the characteristics and composition of the material for disposal. It was found that the material to be disposed of was clean, uncontaminated and that there was no evidence of any substance which would negatively impact the local environment. This was covered in Chapter [5.1] to [5.4].

Other waste produced by the dredging operations are expected to be small (i.e domestic cabin waste/garbage, spent engine oil) and appropriate waste segregation and management measures will be applied to minimise the impact. This waste will be disposed of off-site by a licensed waste contractor.

With the appropriate mitigation measures, the effect of waste generated was considered as acceptable.

## **[5.14]Material Assets**

Under the guidance issued by the Environmental Protection Agency (2022), material assets are taken to mean built services and infrastructure. As the Basin itself is a piece of critical built infrastructure, the impacts of dredging on the Basin must be considered. The dredging and disposal operations are part of the wider Ringaskiddy Port Redevelopment project that aims to improve the efficiency and competitiveness of the port facilities in the South-West-Region. Specifically, in the Ringaskiddy basin, the dredging operations improves the navigational access to the new facilities that result in a positive contribution to the existing and planned material assets in the basin.

The disposal area is not deemed to be a material asset and as such the disposal activity will not have an effect on any Material Assets.

## [5.15] Interactions

The EIA Directive (2014/52/EU) requires a description of *'the interaction between any of the foregoing aspects.'* Interactions can occur when a predicted impact causes interaction or dependency with other environmental aspects. Potential interactions of the Capital dredge campaign and the maintenance dredging in Cork Harbour was investigated. It was concluded from the coastal process modelling that the redevelopment will not change the existing dredge requirements. However, if the Capital dredging and any maintenance dredging occurred simultaneously, these activities could negatively interact at the disposal site. To mitigate this, disposal was not allowed during Port of Cork's maintenance dredging under DAS permit S0013-3 and S0021-03 using separate dredging plant. It is advised that during the upcoming disposal activity, the capital dredge works do not correspond with any maintenance disposal activities.

Other interactions identified were between:

[5.1] Land and Soils

[5.2] Water

[5.3] Biodiversity

[5.4] Fisheries and Aquaculture

The interactions between these aspects arise due to the impact that the sediment plumes could have on each. If the sediment plume significantly impacted the Land and Soils or the Water of the Off-shore Disposal Site it would consequently also impact the Biodiversity and Fisheries and Aquaculture in the area. Due to the dredged material being uncontaminated, the potential impacts were reduced.

Once the mitigation measures discussed above are implemented, the result shall be a negligible combined impact in the long term.

## [6] Summary of Mitigations

The impacts on the receiving environment due to the disposal operations have been identified. A summary of the mitigations applied to reduce each impact was compiled.

- A full record of loading and disposing tracks and record of the material being disposed of will be maintained for each trip.
- No over-spilling (overflowing) from the vessel(s) will be permitted.
- Disposing will be carried out through the vessel's hull.
- Disposing will be limited to 29,376 dry tonnes per day.
- No disposing will occur in either November or February.
- No disposing will occur at the same time as the Port of Cork's maintenance dredging permit using separate dredging plant.
- The Off-shore Disposal Site will be divided into subsections, with each used sequentially to ensure uniform spread of the dredged sediments.
- A 250m radius exclusion zone will be implemented around an archaeological anomaly at location 188723.5, 54463.1 (ITM coordinates).
- An Archaeologist will witness all the work in line with the Underwater Archaeology Impact Assessment.
- A Marine Mammal Observer will witness all the work in line with the Annex IV Species Risk Assessment.
- Water Quality monitoring of the loading areas will be undertaken at locations to be agreed with the EPA.
- A documented Accident Prevention Procedure will be put in place prior to commencement.
- A documented Emergency Response Procedure will be put in place prior to commencement.

## [7] Consideration and Reasoned Conclusions in relation to the:

### [7.1] EIA Directive

The EIA process is required under the terms of the EU Directive 2012/52/EU for all EU member states and was implemented in Ireland through the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI 296 of 2018). The mandatory requirement is based on the nature and scale of a proposed development, generally based on thresholds of scale.

For the larger Port Redevelopment Project, an EIAR was compiled due to the activities in the project subject to the requirements of Part X of the Act and Part 10 of the Planning and Development Regulations on the basis set out in:

- Schedule 5, Part 2, Section 2 (d):

***Extraction of stone, gravel, sand or clay by marine dredging (other than maintenance dredging), where the area involved would be greater than 5 hectares or, in the case of fluvial dredging (other than maintenance dredging), where the length of river involved would be greater than 500 meters.***

- Schedule 5, Part 2, Section 10 (e):

***New or extended harbours and port installations, including fishing harbours, not included in Part 1 of this Schedule, where the area, or additional area, of water enclosed would be 20 hectares or more, or which would involve the reclamation of 5 hectares or more of land, or which would involve the construction of additional quays exceeding 500 meters in length.***

Those conditions highlighted in **bold** are relevant to the Redevelopment Project and, given that both conditions are exceeded, an EIA was required and subsequently completed for the Redevelopment project.

For the disposal (which is the focus of this AIMU), the only activity subject to EIA requirements may include:

- Schedule 5, Part 2, Section 15:

Any project listed in this Part which does not exceed a quantity, area or other limit specified in this Part in respect of the relevant class of development, but **which would be likely to have significant effects on the environment**, having regard to the criteria set out in Schedule 7 (EU Directive Annex III).

However, based on the conclusions of the Appropriate Assessment Screening Report and NIS in support of the DAS application (RPS, 2024a), the activities of the Capital Dredging (which include the dredging and disposal operations) will not negatively affect the environment. Therefore, no EIA is required for the disposal operations. Furthermore, it is important to note that impacts of dredging and disposal have been considered within Chapter 13 – Coastal Processes of the EIAR prepared for the larger Port Redevelopment Project (Port of Cork Company, 2025). In this report the impacts were also not deemed to be significant.

## [7.2] Water Framework Directive

The focus of the Water Framework Directive (WFD) is on protecting and improving water quality in all waters. Under the WFD, all waters (rivers, lakes, groundwater, estuaries, coastal waters, canals and reservoirs) are protected, and measures must be put in place to ensure quality of these waters is restored to at least 'good' status or good potential (with some exceptions) by 2027 at the latest. The Water Action Plan 2024, as part of the third-cycle plan, sets out how Ireland will manage and improve the water quality of its groundwater, rivers, lakes, estuarine and coastal waters up to 2027. The WFD applies to all waterbodies, including estuaries and coastal waters out to at least one nautical mile (for biological parameters) and to 12 nautical miles (for chemical parameters).

The disposal area is in the Western Celtic Sea water body located 2.6 nautical miles off the coast. The overall WFD status for 2016-2021 indicated to be High for the disposal site.

The strategies and objectives of the WFD in Ireland have influenced a range of national legislation and regulations. These include the following:

- European Communities (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003).
- European Communities (Drinking Water) Regulations 2014 (S.I. 122 of 2014).
- European Communities Environmental Objectives (Surface Waters); Regulations, 2009 (S.I. No. 272 of 2009).
- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010).
- European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2010 (S.I. No. 610 of 2010).
- European Communities (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations, 2011 (S.I. No. 489 of 2011).

All new developments in Ireland that may have an impact on the water environment are required to comply with objectives of the Water Framework Directive (WFD), under European Communities Environmental Objectives. This includes ensuring that no changes occur that cause a deterioration of the current status of any water body, and that the development does not prevent the achievement of the future status objectives of any water body. Water body status deterioration can occur because of deterioration of any of the quality elements that make up the overall status (e.g. biological, physicochemical or hydro-morphological elements for surface waters) even where this does not result in a lowering of overall water body status.

The environmental assessments (and all the associated surveys and specialist assessments) of the proposed disposal operations have been undertaken and mitigation measures proposed to ensure compliance with the above mentioned WFD objectives. In conclusion, these assessments have found that the disposal operation has a negligible effect on the wider water body.

## [7.3] Marine Strategy Framework Directive

The EU's Marine Strategy Framework Directive (MSFD) was established to safeguard the marine ecosystem and biodiversity, which are crucial for human health and marine-related economic and social activities. The directive underscores the importance of preserving and, where possible, restoring the marine environment to maintain biodiversity and ensure clean, healthy, and productive



oceans and seas. The scope of the MSFD is broader than that of the WFD, covering a greater range of biodiversity components and indicators.

The MSFD identifies negative impacts such as pollution, biodiversity loss, seabed damage, overexploitation, the spread of non-indigenous species, marine litter, underwater noise, ocean warming, and acidification. The MSFD descriptors are indicated in Table 7-1. Considering the impacts and subsequent mitigations proposed in Chapter [5], no likely significant impacts to the MSFD objectives are expected for the proposed disposal operations.

**Table 7-1: Descriptors under the MSFD.**

Descriptor	Description
<b>D1 Biodiversity</b>	Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions
<b>D2 Non-indigenous species</b>	Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems
<b>D3 Commercial Fish and Shellfish</b>	Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock
<b>D4 Food Webs</b>	All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity
<b>D5 Eutrophication</b>	Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters
<b>D6 Seabed Integrity</b>	Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected
<b>D7 Hydrographical Conditions</b>	Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems
<b>D8 Contaminants</b>	Concentrations of contaminants are at levels not giving rise to pollution effects
<b>D9 Contaminants in Seafood</b>	Contaminants in fish and other seafood for human consumption do not exceed levels established by Union legislation or other relevant standards
<b>D10 Marine Litter</b>	Properties and quantities of marine litter do not cause harm to the coastal and marine environment



Descriptor	Description
<b>D11 Energy, including underwater noise</b>	Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment

MSFD assessment of the disposal operations:

- **D1 Biodiversity:** Negligible/minor impacts on species, habitats, or ecosystem functionality.
- **D2 Non-indigenous Species:** It is anticipated that vessels to be used will be mobilised from within Ireland which will minimise risk of introduction or spread of invasive species from other regions.
- **D3 Commercial Fish and Shellfish:** Negligible impact on the population and health of commercial species.
- **D4 Food Webs:** Negligible anticipated disruption to trophic relationships or food chain dynamics.
- **D5 Eutrophication:** Negligible anticipated contribution to nutrient enrichment.
- **D6 Seabed Integrity:** Negligible anticipated detrimental impacts on the physical and biological structure of the seabed.
- **D7 Hydrographical Conditions:** Negligible anticipated alteration of hydrological characteristics, including water flow, temperature, and salinity.
- **D8 Contaminants:** Negligible anticipated release or increase in levels of harmful substances.
- **D9 Contaminants in Seafood:** No anticipated accumulation of hazardous substances in the marine food chain.
- **D10 Marine Litter:** No anticipated contribution to marine debris or pollution.
- **D11 Energy, including underwater noise:** Negligible/minor short term anticipated increase in energy inputs or underwater noise levels.

The findings indicate that the proposed disposal operations have no significant impacts on the various MSFD biological, hydromorphological and physico-chemical descriptors within the marine environment.

## [8] References

- Anon. (2019) *The Irish Stock Book. Report to the Minister for Agriculture, Food and the Marine Annual Review of Fish Stocks in 2019 with Management Advice for 2020*. Marine Institute, Rinville, Co. Galway, Ireland.
- Aquatic Services Unit. (2020). *Survey of Benthic Habitats at the Port of Cork Licensed Dumpsite off Power Head including notes on Fisheries and an Impact Hypothesis*. Commissioned by Port of Cork Company.
- Environmental Protection Agency, Ireland. (2022). *Guidelines on the information to be contained in Environmental Impact Assessment Reports*. Published May 2022. ISBN 978-1-80009-005-7.
- Haskins, C., 2024. *Underwater Archaeological Impact Assessment (UAIA) for the Ringaskiddy Basin and Berths, Port of Cork Capital Dredging Project 2024-2030*. Prepared for Port of Cork.
- McConnell, B.J., Fedak, M.A., Lovell, P. and Hammond, P.S. (1999) *Movements and foraging areas of grey seals in the North Sea*. Journal of Applied Ecology 36, 573-590.
- McKeown, M. (2016) *Underwater Acoustic Emissions, Dublin Port Report on July 2016 Dredging and Dumping Operations*. Alexandra Basin Dublin Port. Technical Report for RPS, September 2016. 18 pp.
- OSPAR Commission (2024) *OSPAR Guidelines for the Management of Dredged Material at Sea* (Agreement 2014-06).
- O'Sullivan, D., O'Keeffe, E., Berry, A., Tully, O and M. Clarke (2013) *An inventory of Irish herring spawning grounds*. Irish Fisheries Bulletin No. 42. Marine Institute, Rinville, Co Galway, Ireland.
- Port of Cork Company (2025). *Environmental Impact Assessment Report (EIAR): Ringaskiddy Port Re-development – Volume II Main Document*. Report No. M1099-AYE-ENV-R-001, Rev 03, 28 January 2025. Cork: Ayesa.
- Port of Cork Company (2024). *Dumping at Sea Application: Capital Dredging Disposal at Sea Application Supporting Documentation*. Report Final Issue, 16 December 2024. The Bates Partnership.
- RPS (2024a). *Report to Inform Screening for Appropriate Assessment & Natura Impact Statement, Ringaskiddy Basin Capital Dredging Campaign. NI2752\_RP006*. Prepared for Port of Cork Company.
- RPS (2024b). *Sediment Plume Dispersion Assessment: Ringaskiddy Capital Dredging. Appendix B of Report NI2752\_RP006*. Prepared for Port of Cork Company.
- RPS (2020) Port of Cork Maintenance Dredging: Sediment Plume Dispersion Assessment. IBE1794 Ports of Cork Maintenance Dredging Rev01, November 3rd, 2020.
- RPS (2015). *Ringaskiddy Port Development EIS*, Further Information in accordance with Section 37F [1] Revisions to Environmental Impact Statement, February 2015.
- Russell, C. and Levesque, S. (2014) *Port of Cork Maintenance Dredging Marine Mammal Observers Report for Dredging and Dumping Activity*. September-October 2017. IWDG Consulting.

- Sheehan, C. & Harrington, J. (2012). *Management of dredge material in the Republic of Ireland – A review*, Waste Management, 32(5), pp. 1031-1044.
- Sutton, G., Jessopp, M., Folegot, T. and Clorenec, D. (2014). *Mapping the spatio-temporal distribution of underwater noise in Irish waters*. EPA STRIVE Programme 2007-2013 Report No. 121.
- The Marine Institute. 2020. Definition and Classification of Ireland's Seascapes. Minogue, R, Foley, K, Collins, T, Hennessy, R, Doherty, P, Vaughan, E and Black, D.
- Todd, V.L.G., Todd, I.B., Gardiner, J.C., Morrin, E.C.N., MacPherson, N.A., DiMarzio, N.A., and Thomsen, F. (2015) *A review of impacts of marine dredging activities on marine mammals*. ICES Journal of Marine Science 72(2), 328-340.

# Appendix A: RFP Sediment Plume Investigation

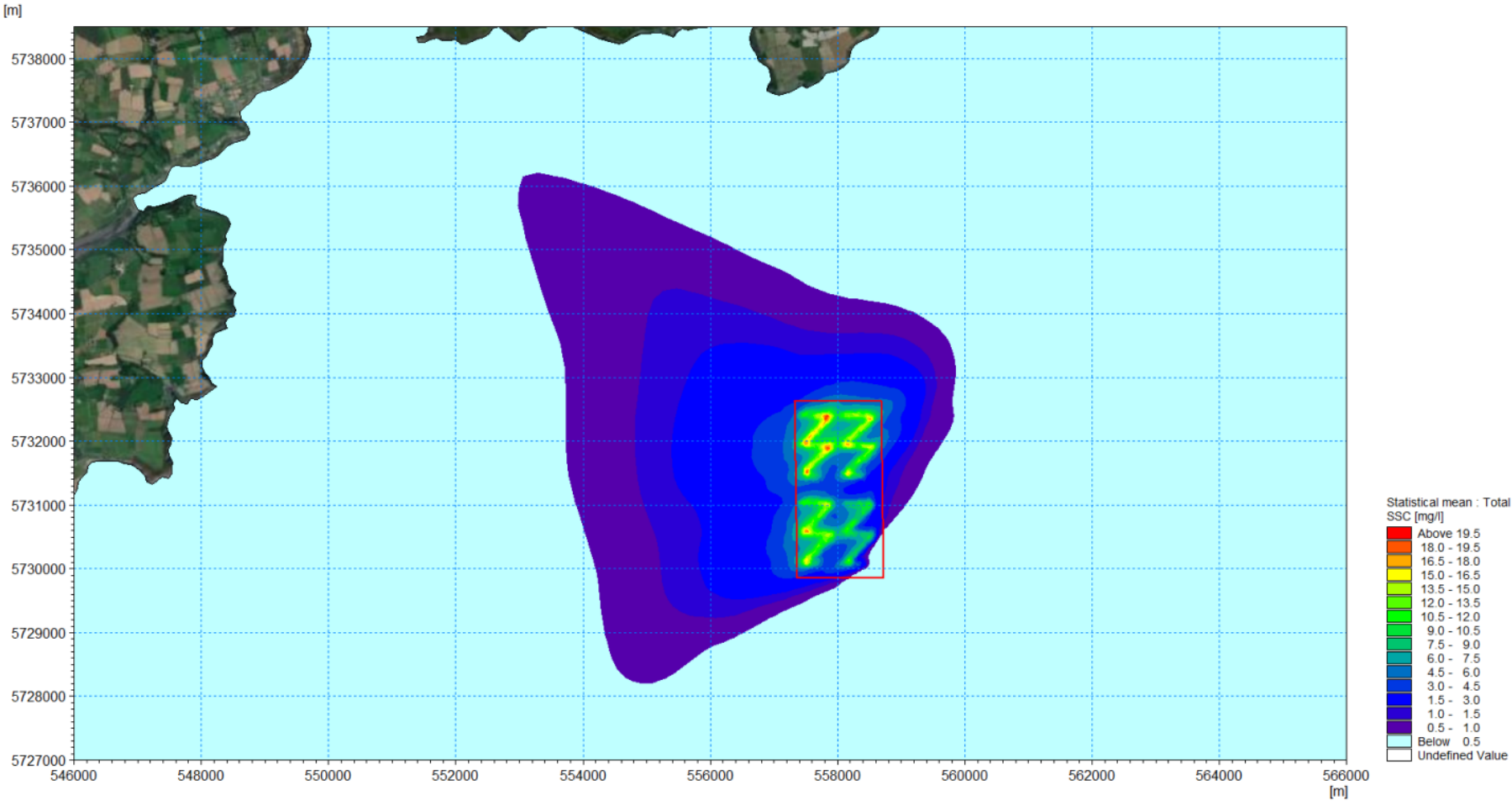
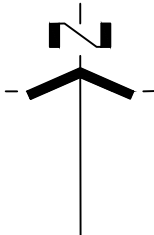


Figure A-1: Average total suspended sediment concentration (SSC) at the Off-shore Disposal Site during the capital dredging operations (RPS, 2024b).

## Appendix B: Herring Spawning Bed Locations

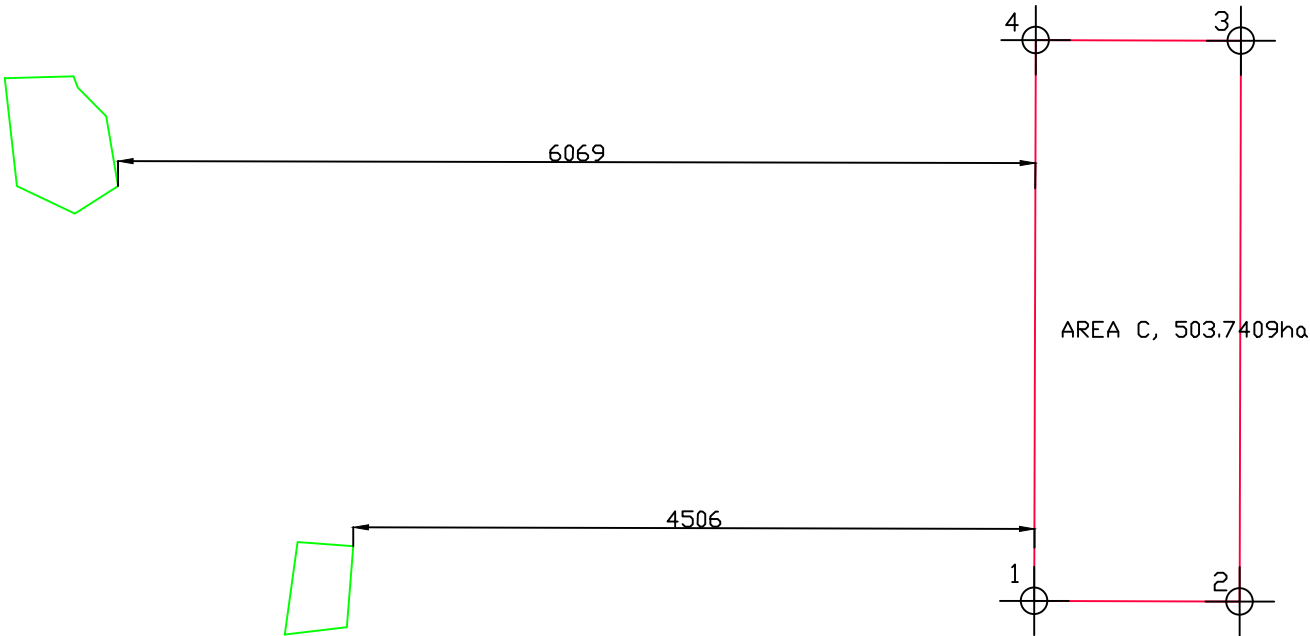
Easting 574752  
Northing 561391

Easting 594252  
Northing 561391



Area C Coordinates		
Point	Easting ITM (m)	Northing ITM (m)
1	588276.3	551602
2	589635.3	551599.1
3	589642.9	555307.1
4	588284.9	555310.1

PROPOSED DUMPSITE LOCATION



Easting 574752  
Northing 549741

TAILTE EIREANN SURVEYING  
LICENCE No. CYAL50399548

Drawn by [redacted] - Arch Tech  
Checked by [redacted] - MScM, MScEng, BScEng  
Approved by [redacted] - BE CEng MIEI

Easting 594252  
Northing 549741

P01	17.02.25	ISSUE FOR LICENCING	R.C.	M.F.
REV	DATE	DESCRIPTION	BY	APP
CLIENT				
PORT OF CORK				

**MWP**

ENGINEERING AND ENVIRONMENTAL CONSULTANTS

CORK | TRALEE | LONDON | LIMERICK

mwp.ie

PROJECT: RINGASKIDDY PORT REDEVELOPMENT - PHASE 1B CCT BERTH EXTENSION
TITLE: HERRING SPAWNING BEDS, PROPOSED MARITIME USAGE AREA

DRAWN: R.C.	CHECKED: N.S.	APPROVED: M.F.
PROJECT NUMBER: 24462	DATE: FEB. '25	SCALE @ A3: 1:50000
STATUS DESCRIPTION FOR INFORMATION		STATUS: S2
DRAWING NUMBER: 24462 - MWP - ZZ - ZZ - DR - C - 0003		REV: P01

## Appendix C: NMPF Policies

Table C-1: NMPF policies compliance assessment.

Policies	Response
<p><b>Ports, Harbours and Shipping Policy 1</b>  <i>To provide for shipping activity and freedom of navigation, the following factors will be taken into account when reaching decisions regarding development and use:</i>  <i>The extent to which the locational decision interferes with existing or planned routes used by shipping, access to ports and harbours and navigational safety. This includes commercial anchorages and approaches to ports as well as key littoral and offshore routes;</i>  <i>A mandatory Navigation Risk Assessment;</i>  <i>Where interference is likely: whether reasonable alternatives can be identified; and</i>  <i>Where there are no reasonable alternatives: whether mitigation through measures adopted following the principles and procedures established by the International Maritime Organisation can be achieved at no significant cost to the shipping or ports sector.</i></p>	<p>Chapter [5.8] details the impacts of the disposal operation on the existing harbour and relevant mitigation measures.  There are no navigational safety implications arising from the proposed work.  The Contractor and Haulbowline's Harbour Master will coordinate the scheduling of the Works accordingly.  The Contractor will abide by the Harbour Master's instructions.</p>
<p><b>Ports, Harbours and Shipping Policy 2</b>  <i>Proposals that may have a significant impact on current activity and future opportunities for expansion of port and harbour activities should demonstrate that they will, in order of preference:</i>  <i>a) avoid,</i>  <i>b) minimise, or</i>  <i>c) mitigate significant adverse impacts and</i>  <i>d) if it is impossible to mitigate significant adverse impacts on current activity and future opportunities for expansion of port and harbour activities, proposals should set out the reasons for proceeding.</i></p>	<p>The proposed work will not impact the current activity and future opportunities for expansion of the disposal site.  The proposed work will create additional berthing capacity and safe navigation within the Ringaskiddy basin.</p>
<p><b>Ports, Harbours and Shipping Policy 3</b>  <i>Proposals that may have a significant impact upon current activity and future opportunities for expansion of port and harbour activities must demonstrate consideration of the National Ports Policy, the National Planning Framework, and relevant provisions related to the TEN-T network.</i></p>	<p>The proposed activities will not significantly impact current and future opportunities to expand the disposal site.</p>
<p><b>Ports, Harbours and Shipping Policy 4</b>  <i>Proposals within ports limits, beside or in the vicinity of ports, and/or that impact upon the main routes of significance to a port, must demonstrate within applications that they have:</i>  <i>been informed by consultation at a pre-application stage or earlier with the relevant port authority;</i>  <i>have carried out a navigational risk assessment, including an analysis of maritime traffic in the area;</i>  <i>and</i>  <i>have consulted the Department of Transport, MSO and Commissioners of Irish Lights.</i></p>	<p>The disposal operations are not within the port limits or impact the main routes.</p>



Policies	Response
<p><i>Applicants must continue to engage parties identified in pre-application processes as appropriate during the decision-making process.</i></p>	
<p><b>Ports, Harbours and Shipping Policy 5</b>  <i>Proposals for capital dredging will be supported where it is necessary to safeguard national port capacity and Ireland's international connectivity and where required compliance assessments associated with authorisations have been carried out and incorporated into subsequent competent authority decision(s).</i></p>	<p>A DaS Permit Application was submitted to the EPA and is currently under review. Refer to Application No. S0039-01 and S0021-03.</p> <p>An AAS Report and UAIA support the MAU license. There are no other authorisations or planning permissions required.</p> <p>There will be no significant impact on marine activities or uses in the maritime area from this disposal MAU licence application.</p>
<p><b>Ports, Harbours and Shipping Policy 6</b>  <i>In areas of authorised dredging activity, including those subjects to navigational dredging, proposals for other activities will not be supported unless they are compatible with the dredging activity.</i></p>	<p>The capital dredging would alleviate the navigational dredging requirement (permit S0013-03) in the Ringaskiddy basin.</p>
<p><b>Ports, Harbours and Shipping Policy 7</b>  <i>Proposals for maintenance dredging activity will be supported where:</i>  <i>Relevant decisions by competent authorities incorporate the outcome of statutory environmental assessment processes, as well as necessary compliance assessments associated with authorisations, including in relation to the planning process;</i>  <i>There will be no significant adverse impact on marine activities or uses or the maritime area. Any potential adverse impact will be, in order of preference, avoided, minimised or mitigated;</i>  <i>dredged waste is managed in accordance with an internationally agreed hierarchy of waste management options for sea disposal;</i>  <i>if disposing of dredged material at sea, existing registered disposal sites are used, in preference to new disposal sites; and</i>  <i>where they contribute to the policies and objectives of this NMPF.</i></p>	<p>Not applicable as no maintenance dredging will occur.</p>
<p><b>Ports, Harbours and Shipping Policy 8</b>  <i>Proposals that cause significant adverse impacts on licensed disposal areas should not be supported. Proposals that cannot avoid such impact must, in order of preference,"</i>  <i>a) minimise,</i>  <i>b) mitigate, or</i>  <i>c) if it is not possible to mitigate the significant adverse impacts, proposals must set out the reasons for proceeding.</i></p>	<p>There will be no significant impacts on licensed disposal areas from these activities.</p>
<p><b>Ports, Harbours and Shipping Policy 9</b>  <i>Proposals for the management of dredged material must demonstrate that they have been assessed against the waste hierarchy.</i></p>	<p>Dredged waste is to be managed by the internationally agreed waste management hierarchy as discussed in Chapter [5.13].</p>



Policies	Response
<p><b>Ports, Harbours and Shipping Policy 10</b></p> <p><i>Proposals identifying new dredge disposal sites which are subject to best practice and guidance from previous studies should be supported where:</i></p> <ul style="list-style-type: none"> <li><i>competent authority decisions incorporate necessary compliance assessments associated with authorisations and</i></li> <li><i>they contribute to the policies and objectives of this NMPF.</i></li> </ul> <p><i>Proposals must include an adequate characterisation study, be assessed against the waste hierarchy and must be informed by consultation with all relevant stakeholders.</i></p>	<p>There are no new dredge disposal sites proposed.</p> <p>An actively used licensed disposal site is proposed.</p>