MWP

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR)

Ros an Mhíl Deep Water Quay

Chapter 16: Schedule of Mitigations

Department of Agriculture, Food and the Marine

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16. Schedule of Mitigations

16.1 Introduction

This Schedule of Environmental Mitigation summarises and sets out an implementation programme for all environmental mitigation measures recommended in the Environmental Impact Assessment Report (EIAR) and the Natural Impact Statement (NIS) for the Proposed Project.

The outline Construction Environmental Management Plan (CEMP) (see Appendix 2A in EIAR Vol. 3) will be finalised, approved and implemented during the construction phase of the development. The CEMP will be reviewed regularly and revised as necessary to ensure that the measures implemented are effective;

The sub-sections which follow (16.2 to 16.12) provide the identified mitigation measures specific to this project which have been outlined in each of the EIAR chapters and in the NIS.

16.2 Population and Human Health Mitigation Measures

16.2.1 Construction Phase

The proposed development is located within an existing working harbour and will not result in the displacement of residential dwellings or changes to settlement patterns. Although construction activities such as rock reclamation, quay wall assembly, and dredging may cause intermittent increases in noise, vehicle movements, and marine operations, these impacts will be temporary, spatially confined to the harbour zone, and regulated under the Construction Environmental Management Plan (CEMP).

- To minimise disturbance to nearby residential communities, controlled working hours will be enforced—Monday to Friday from 07:00 to 19:00 and Saturday from 07:00 to 14:00.
- All construction activities will be carried out in accordance with the Construction Environmental Management Plan (CEMP).
- Noise and vibration impacts will be managed through restricted working hours and ongoing environmental monitoring (see measures in Section 16.9).
- A Dust Minimisation Plan will be developed specifically for the construction phase, and dust suppression techniques, such as wheel washing, will be implemented (see measures in Section 16.10).
- Traffic impacts will be mitigated through scheduling and adherence to safety access protocols (see measures in Section 16.12).

16.2.2 Operational Phase

During the operational phase all fishing vessels will be required to utilise the onshore power supply to reduce emissions while berthed.

16.3 Risk of Accidents Mitigation Measures

The area of the proposed development remains in an area designated as Flood Zone A with the highest probability of flooding. This means there is a greater than 1-in-200 chance of coastal flooding occurring at the project site. The design of the new deep water quay considers this high risk of flooding and proposes to raise the ground level behind the quay wall to a level of +7m Chart Datum (CD), which is above the suggested +6.7mCD in the Flood Risk Assessment (FRA) carried out in 2016 (Appendix 7A).

Flooding can affect the safety of construction staff and equipment.

Flooding affects water quality in a variety of ways. Flood waters can interact with pollutants and chemicals, such as fuel and oils, that can be brought out to sea when the flood waters recede. The concrete batching plant to be relocated on site could also be affected, with concrete entering the water during a flood event. This can also affect material stockpiles such as gravel, sand and manufactured materials such as piping and steel rebar, displacing it and carrying the material into Cashla Bay when the water levels recede. The flooding could also cause erosion of the environment by disturbing soils and causing sedimentation in the water.

Until such time as the quay wall is completed and the ground level of the reclaimed area behind the quay wall has been raised to +7mCD, the site will remain at risk of occasional coastal flooding during tidal, storm and high rainfall events. To avoid accidents and pollution all construction works should be suspended during severe weather events likely to cause flooding and erosion or pollution.

Best construction practice, including that for Health and Safety, will be employed to minimise the risk of any accidents occurring. All work on site will be carried out in compliance with the Safety, Health and Welfare at Work Act 2005 as amended, the Safety, Health and Welfare at Work (Construction) Regulations 2021, and all relevant Legislation and Work Practice to ensure that the construction areas, site environs and public roads remain safe for all users.

16.4 Terrestrial Ecology Mitigation Measures

The mitigation measures outline in Chapter 5 of the EIAR Vol. 2 and in the NIS include mitigation measure to avoid contamination of water quality on land and in the sea. These measures are included in Section 16.3. and 16.5).

16.4.1 Construction Phase

Project Environmental Manager

A suitably qualified and experienced Project Environmental Manager will be employed during the construction phase of the project. Duties will include the review of all method statements, delivery of toolbox talks, arranging all required pre-construction surveys for protected species and monitoring of works throughout the construction phase to ensure that works are taking place in compliance with the CEMP and that the requirements of the Conditions of Planning and all environmental controls and EIAR mitigation is implemented in full. As part of toolbox talks, contractor staff and other site personnel, as relevant, will be made aware of the procedure to follow if a protected species or their resting or breeding site is encountered.

The appointed Environmental Manager will be awarded a level of authority and will be allowed to stop construction activity if there is potential for adverse environmental effects other than those predicted and mitigated for in the EIAR. The appointed Environmental Manager will have demonstrated professional experience in managing large-scale construction works affecting ecological receptors identified within the EIAR.

Bio-security

The following measures are recommended in relation to Site bio-security and reducing the risk of introduction or spread of invasive species within the area.

- Prior to being brought to Site, validation should be provided by all suppliers that construction plant, machinery and vehicles are free from invasive species. Similarly, certification is to be obtained from suppliers that all raw materials to be imported to Site including soil, fill, sand, gravel and landscaping materials are free from invasive species.
- All vehicles, machinery and equipment/tools are to arrive to site clean, and steam washed. Visual inspections are to take place. All Personal Protective Equipment (PPE) brought to site is to be clean and dry with any attached vegetation or debris removed.
- A schedule of regular site inspections for invasive species is to be prepared and undertaken for the duration of the construction works. These inspections are to encompass the IAPS growing season for the duration of the construction works programme to monitor existing IAPS growth, identify any new IAPS stands, inspect materials storage areas and monitor implementation of IAPS management measures on-site, where required e.g., fencing, signage etc.
- Where there is a requirement for IAPS control areas, all vehicles, equipment/tools, footwear etc used in these areas will be thoroughly cleaned in a designated area once works in that area are complete to prevent spread of IAPS. The use of tracked machinery within IAPS infested areas is to be prohibited. The use of tracked machinery within close proximity of IAPS infested areas is to be strictly controlled. This should be undertaken with direction from the Environmental Manager.

Management of Alien Invasive Plant Species (IAPS)

- The extents of IAPS infestations on-site are extremely limited and localised. A pre-construction survey for IAPS is to take place in advance of the commencement of site works to inspect existing stands of IAPS for new growth and identify any new stands which may have emerged in the intervening period.
- A construction-stage IAPS management plan will be prepared and will incorporate the following management measures. The construction stage management plan should set out clear processes for the eradication, control and containment of each IAPS on-site and is to include a detailed implementation and treatment schedule (including initial and follow-up treatments) in light of the construction schedule and the prevailing IAPS conditions on-site at the time.
- Where any IAPS is identified within/adjacent to the works footprint, fencing and/or advisory signage is to be erected around stands (minimum 7 m buffer in the case of Japanese knotweed, if encountered).
- No non-essential ground maintenance or any other ground disturbance should take place within IAPS fenced areas. Where works are required within/adjacent to infested areas, the appointed contractor is to develop and implement an appropriate method statement with regard to managing IAPS on-site and ensuring bio-security compliance. This should be done in consultation with a suitably qualified specialist. Under no circumstances is any IAPS plant or rhizome material to be cut, dug out or in any other way disturbed without the advice of a suitably qualified specialist.
- Where application of herbicides is required to treat IAPS on-site, the proximity of ecological receptors is to be taken into account. Herbicide use is to be minimised as much as possible and targeted to the specific IAPS. Where use of herbicides is required, non-residual, aquatic approved herbicides are to be used. Herbicides are not to be used in windy or foggy weather, during or preceding rainfall or where

rainfall is forecast within 12 hours or during particularly cold weather to reduce risk of spray drift, run-off or poor plant uptake. Herbicides are to be applied strictly in accordance with the manufacturer's recommendations and by competent, experienced and licenced personnel registered as a Professional Pesticides User.

- Monitoring of control measures should be undertaken approximately six to eight weeks after treatment to determine success of measures used.
- Large areas of disturbed/bare soil should be mulched, where appropriate, and seeded/planted at the earliest opportunity with native species to stabilise the soil and deter any subsequent reinvasion. Planting should be carried out with regard to '*Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species* (Kelly, 2012).
- Where off-site removal of IAPS material or infested soil is required, then the relevant NPWS licence will be required to be procured in advance of removal of IAPS material off-site and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477). Off-site removal of such material will be undertaken in accordance with licence conditions.
- All management and control measures implemented on-site during the construction phase are to be carried out in accordance with best practice guidance as set out in '*The Management of Invasive Alien Plant Species on National Roads (GE-ENV-01104)'* TII (2020), '*The Management of Noxious Weeds and Non-native Invasive Species on National Roads*' NRA (2010), '*Best Practice Management Guidelines Rhododendron Rhododendron ponticum and Cherry Laurel Prunus laurocerasus'* Maguire, *et al*., (2008), '*Best Practice Management Guidelines Japanese Knotweed Fallopia japonica*' Kelly, *et al*., (2015) and '*Managing Japanese Knotweed on Development Sites: the Knotweed Code of Practice*' UK Environment Agency (2006).

General Protection of Habitats

- The area of proposed works will be kept to the minimum necessary to minimise disturbance to habitats and flora. Vegetation removal within the Site is to be minimised and be restricted to those areas of vegetation which have been identified for removal (to be clearly marked by contractor staff prior to removal). Removal of vegetation from anywhere outside of marked areas will not be permitted.
- The footprint of the construction area, site compound and materials storage areas will be clearly marked out prior to commencement of works with reference to design drawings, under the supervision of the project engineer and appointed ecologist, so that it is visible to all contractor staff and machine operators.
- The extent of access for all construction plant and machinery is to be clearly marked out, in particular along the southern boundary of the Site to avoid effects on more sensitive habitat, namely areas of 'Scrub (WS1)', which have been identified along the cliff-top immediately adjacent to the Site boundary. A heavy machinery exclusion zone will be established using temporary stakes and signage, as required, to prevent encroachment by heavy machinery onto this habitat. This will be undertaken in consultation with the appointed Environmental Manager. There shall be no side casting of material or any other construction-related activity within this area. All operatives will be made aware of this works exclusion zone.
- All operatives will be made aware of the immediate proximity of Cashla Bay to the Site as part of toolbox talks.

General Protection of Fauna

- Disturbance of fauna generally will be reduced by controlling the movement of construction vehicles and personnel.
- Construction materials and wastes are to be kept in designated areas to reduce risk of accidental injury/entrapment of any wildlife on-site.
- In accordance with Section 40 of the Wildlife Acts, vegetation removal, including tree removal, will be conducted outside of the restricted bird nesting period (March 1st to 31st August, inclusive). This will not only protect nesting birds, but a range of biodiversity. Environmental Manager
- Mammals and birds are mobile and so are expected to disperse from the area; however, young or hibernating animals are vulnerable to impacts during vegetation clearance. Prior to any vegetation clearance, the area will be checked by the Environmental Manager to check for the presence of young or hibernating animals.
- Should any resting or breeding place of any protected species be discovered within the Site during the pre-construction or construction phases, the Environmental Manager is to be informed immediately, and the advice of NPWS sought. Any works in the area are to cease immediately, and the area is to be cordoned off until the Environmental Manager has authorised recommencement of works.
- All temporary construction lighting is to be switched off outside daylight hours. Construction lighting is to be directed inwards into the Site to reduce indirect alteration of adjacent habitats outside the site and minimise nocturnal effects on faunal species.
- To reduce the level of night-time disturbance to nocturnal fauna, construction activities should be restricted to standard construction hours. Construction work will not take place outside of these hours unless in exceptional circumstances.

Protection of Birds

Pre-construction Surveys

A pre-construction survey of the Site for ground nests will be conducted by a suitably qualified ecologist in advance of any works to identify any breeding sites along the shoreline. In the event that any bird nesting sites are identified, best-practice mitigation will be recommended by the appointed ecologist in consultation with the Planning Authority/NPWS.

Recommended Timing of Works

It is recommended that, if possible, works are conducted in early autumn or late spring to avoid the main breeding and wintering periods for bird activity. Pushing out works to later in the breeding season will reduce the likelihood of an overlap between construction activity and breeding activity. Typically, this would be from April to July. The summer season had more sightings of waders and other waterbirds compared to the winter season hence it is important to not schedule construction during peak breeding periods.

Protection of Otter

A pre-construction survey for otter should be undertaken by a suitably qualified ecologist prior to the commencement of any works as per best-practice guidance set out in NRA (2008) in relation to construction works and otter. The purpose of the pre-construction survey is to identify any changes within the Site. The survey should be undertaken no more than 10-12 months in advance of construction. The survey should be

supplemented by an additional survey immediately prior to site works commencing if more than four weeks have elapsed since the initial pre-construction survey.

In the event of an otter breeding/resting place being discovered within or in proximity of the Site, all construction activity and site works will be undertaken in accordance with NRA (2008). Implementation of best-practice guidelines for otter will be overseen by the appointed Environmental Manager.

To reduce duplication, the terrestrial ecology chapter references and applies mitigation measures detailed in **Section 16.5** Water and **Section 16.7. Material Assets,** CEMP (**Vol III Appendix 2A** of this EIAR).

16.4.2 Operation Phase

During operation, asymmetric beam floodlights will be installed with the glass oriented parallel to the ground, ensuring that light is cast downward and minimizing horizontal light spill, thereby reducing disturbance to surrounding wildlife.

Mitigation measures for terrestrial ecology during the operational phase will be the same as mitigation measures for **Volume II Chapter 7** Water of this EIAR**.** Refer to **Section 16.5** for mitigation measures in relation to water.

During the operational phase of the proposed development, lighting will be provided in accordance with Section 3.1.3 of the Code of Practice: Safety and Health in Ports (ILO, 2018) which contains recommendations in relation to lighting for port facilities appropriate in the context of a deep water quay.

The site is already an operational harbour and bay with existing street lighting and the proposed lighting masts will have an average level of illumination of 50 lux in accordance with ILO (2018) recommendations. Although such levels of illumination are not expected to have the potential to cause significant ecological impacts, as a precautionary measure, the proposed floodlights will be of an asymmetrical beam design installed with the glass oriented parallel to the ground. This ensures that light is cast downward to minimise any horizontal light spill and, thereby, reduce disturbance to wildlife.

The operational activities of the deep water quay will be conducted in accordance with applicable international regulations and standards including the following:

- International Labour Organization (ILO) Code of Practice: Safety and Health in Ports (ILO, 2018)
- Occupational Safety and Health (Dock Work) Convention, 1979 (No. 152) adopted by the General Conference of the ILO[1]
- ILO Recommendation concerning Occupational Safety and Health in Dock Work, 1979 (No. 160)[2]
- International Maritime Organisation (IMO) Solid Bulk Cargoes Code and Supplement (IMSBC Code)[3]
- International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code)[4]

[1] Convention C152 - Occupational Safety and Health (Dock Work) Convention, 1979 (No. 152) Accessed: 21st July 2025

[2] Recommendation R160 - Occupational Safety and Health (Dock Work) Recommendation, 1979 (No. 160) Accessed: 21st July 2025

[3] IMSBC Code | IMO e-Publications Accessed: 21st July 2025

[4] IBC Code | IMO e-Publications Accessed: 21st July 2025.

- International Code for the Safe Carriage of Grain in Bulk (International Grain Code)[5]
- Code of Practice for the Safe Loading and Unloading of Bulk Carriers (BLU Code)[6]
- International Maritime Dangerous Goods Code (IMDG Code)[7]

16.5 Land and Soils Mitigation Measures

16.5.1 Construction Phase

- Temporary storage of any spoil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment, and the material will be stored away from the sea;
- Excavated spoil will be stockpiled at appropriate heights and slope angles;
- To minimise the potential risk of pollution to the sea by sediment laden run off, sediment entrainment measures will be incorporated into the development. These measures will include: blocking of all drainage trenches to prevent runoff reaching the sea, intercepting run off, lining ditches with geotextile and placing hay bales to trap sediment;
- Bunds for the storage of chemicals and hydrocarbons will be lined or constructed of materials resistant to damage by the materials stored therein. In addition, the capacity of such bunds will be a minimum of 110% of the volume of the largest container stored therein. Bunds will be designed in accordance with EPA guidance in relation to the storage of potentially polluting liquids ('IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities', 2004);
- Where refuelling is to take place on site it will be within a designated impermeable, bunded area, away from all drains. In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as 'Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA C532, 2001) will be referred to;
- Drip trays will be used where hydrocarbons are being used for vehicle maintenance/refuelling;
- All plant will be inspected at the beginning and end of each shift and if leaks are evident they are to be repaired immediately or removed from site and replaced; and
- Explosive materials and detonators will be stored, transported, handled and used in the manner recommended by the manufacturer and in accordance with all statutory requirements or otherwise as advised by the Firearms and Explosives Unit of the Department of Justice and Equality (DOJE) and the Garda Síochána. It should be noted that these requirements will be set out in a Method Statement which will be agreed with the DOJE and the Garda Síochána in advance of the commencement of drilling and blasting works.

[5] INTERNATIONAL-GRAIN-CODE.pdf Accessed: 21st July 2025.

[6] BLU Code | IMO e-Publications Accessed: 21st July 2025.

[7] IMDG Code – 2024 Edition | IMO e-Publications Accessed: 21st July 2025.

- Portable chemical toilets will be provided for the duration of the works and all waste material will be removed from site and disposed of to an appropriately licensed facility;

16.5.2 Operation Phase

The following mitigation measures are proposed to address the likely effects associated with the operational phase of the proposed deep water quay:

- The installed surface water drainage system and interceptors will be monitored for blockages and integrity and maintained to ensure their ongoing optimal effectiveness.
- No waste will be disposed of at sea;
- Hazardous wastes will be stored in sealed, labelled drums in locked chemical cabinets;
- Spills on deck will be contained and controlled using absorbing materials;
- Vessels without sewage treatment systems will have suitable holding tanks and will bring waste onshore for treatment in the sewage system operated by Údarás na Gaeltachta;
- All chemicals used on-board should be handled in compliance with Control of Substances Hazardous to Health (COSHH) instructions on handling hazardous materials;
- Chemicals will be stored appropriately in suitably bunded areas and with material safety data sheets; and;
- All waste discharges will be monitored and recorded as per vessel procedures.

It is expected that with the implementation of these mitigation measures there will be a slight impact on the receiving soils, geology and hydrogeology environment. This impact is associated most directly with the ongoing operation of Ros an Mhíl Harbour.

16.6 Water Mitigation Measures

16.6.1 Construction Phase

Mitigation measures proposed for the remaining work to be completed include:

- Suitable chemical and fuel storage shall be provided;
- Spill kits will be located around the site;
- Fuels and oils will be bunded to 110% capacity containers of storage tanks;
- Refuelling of vehicles and machinery will be in designated areas away from watercourses;
- Biodegradable oil to be used in site plant;
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or recycling;
- Fuel that requires transportation shall be moved in a mobile double skinned tank;
- Spill trays will be used when refuelling if the fuelling is taking place outside a compound area;
- Build up at the installed silt fence will be cleared regularly;
- Stockpile areas for materials will be bunded to prevent surface water runoff into the harbour waters;
- Run-off and wash down water from exposed aggregate surfaces, cast in place concrete and from concrete trucks shall be trapped on-site to allow sediment to settle out and reach neutral pH;

- Monitoring buoys to be deployed that measure turbidity and dissolved oxygen and relay information to the onshore station. These will be fitted with alarms that will notify the Contractor and Harbour Master should the limits be exceeded;
- Washout of concrete trucks will not occur at the site. Washout of plant is to be carried out in designated, contained, impermeable areas. Designated washout will be in the form of polythene lined skips or polythene lined washout pits;
- Parking will only take place within designated parking areas.

The following best practice mitigation measures will be implemented for the management of runoff and sediment control to avoid pollution:

- Erosion control, where runoff is prevented from flowing across exposed ground and becoming polluted, and sediment control, where runoff is slowed to allow suspended sediment to settle, are important elements in runoff and sediment control. Erosion and sediment controls are to be implemented prior to any site clearance works commencing.
- Clean water runoff will be intercepted and diverted away from construction site runoff to avoid cross-contamination of clean water with soiled water.
- The amount of material excavated is to be kept to a minimum. Excavations and filling will only be carried out following installation of appropriate sediment controls measures which will slow run-off and trap suspended sediment, particularly if working during prolonged wet weather or if working during an intense rainfall event.
- The drainage system will be inspected regularly during construction, in particular after heavy rainfall/storm events, to check for blockages/drainage issues. Where any drainage issues are identified, these will be addressed on the same day to ensure water quality protection.

The dredging of the approach channel and turning circle are not expected to have any significant effect on turbidity and Dissolved Oxygen (DO) in the channel. It is anticipated results from the turbidity and DO monitoring will have a smaller range given the existing protective berm around the quay wall trench and that little if any blasting is to take place for the remaining works to be completed. All fuel and oil for dredging vessels and equipment will be stored appropriately to the same standard as during the previous works which resulted in no recorded spills or leaks. The mitigation measures outlined above will be effective in preventing negative effects on water quality for the proposed development.

Although the probability of encountering contaminated material during dredging is low, the subsequent mitigation strategies are specified should such a scenario arise.

Potentially contaminated dredge material will be stored in stockpiles within the site itself, and separately from clean dredged material. The stockpiles will be cordoned off and labelled as unusable until such a time as laboratory results are available to determine if the material is suitable for reuse. All equipment will be cleaned down in a designated area prior to leaving the site.

- Dredging vessel will be checked for any fuel/oil leaks on a regular basis by the crew;
- In the event of a major spill due to damage to the dredger, there will be plans to locate and isolate, inform harbour authorities, project manager and environmental agency; and
- The dredger will start at lowest revs of the pump, with pump revs increased over a 15 minute period to allow wildlife an opportunity to move further away from the vessel prior to the pumps reaching full power.

- All plant and machinery on site will be owned and managed by the contractor (In the event of a breakdown or an emergency hired plant and machinery may be required. Same will be inspected ahead of use to ensure suitable)
- Plant and Machinery will be inspected visually daily ahead of works
- Weekly records of inspections will be recorded on GEOPAL GA2 Forms
- The contractor's Fitter for site will carry out regular inspections and servicing on all owned plant and machinery to ensure suitable for use
- Any defects in plant or machinery will be reported.

Turbidity Monitoring

A compact, durable and lightweight HydroLab MS5 probe containing a self-cleaning turbidity sensor, LDO (Luminescent Dissolved Oxygen) sensor, a temperature sensor and a conductivity sensor will be used to measure turbidity. The Probe will be mounted on a moored Toroidal buoy (1,350 mm in diameter) with galvanised steel/aluminium superstructure and baffle light fitted with 2 No. solar panels and battery box for housing the system and battery. The baffle light on each will ensure a subdued light output with less spill giving a softer glow that minimises any potential adverse ecological effects.

Each probe will have a telemetry system to relay data on a half-hourly basis back to a terrestrial monitoring station located at Ros an Mhíl Harbour. The monitoring station will include a data logging system with a real-time visual display of the transmitted data. To meet these requirements, two buoys will be deployed at the project site prior to initiations of works and will be decommissioned on completion of works. The proposed locations of these buoys are shown in Table 16-1, below.

Table 16-1: Proposed locations for surface water monitoring buoys.

Reference	Latitude	Longitude
Data Buoy 1	53.2631	-9.568614
Data Buoy 2	53.267281	-9.568247

16.6.2 Operation Phase

Surface water runoff during the operational phase has the potential to carry pollutants into Cashla Bay. These pollutants can include fuels and oils from vehicles, sediment run off, heavy metals and chemicals from activity on the deep water quay. To minimize this risk the deep water quay has been designed to integrate an appropriate drainage network with interceptors to manage drainage and prevent contamination of the water in Cashla Bay.

The remaining operational mitigation measures required involve the following:

- The installed surface water drainage system and interceptors will be monitored for blockages and integrity and maintained to ensure their ongoing optimal effectiveness;
- No waste will be disposed of at sea;
- Hazardous wastes will be stored in sealed, labelled drums in locked chemical cabinets;
- Spills on deck will be contained and controlled using absorbing materials;

- Vessels without sewage treatment systems will have suitable holding tanks and will bring waste onshore for treatment in the sewage system operated by Údarás na Gaeltachta;
- All chemicals used on-board should be handled in compliance with COSHH instructions on handling hazardous materials;
- Chemicals will be stored appropriately in suitably bunded areas with material safety data sheets; and,
- All waste discharges will be monitored and recorded as per vessel procedures.

16.7 Marine Mitigation Measures

16.7.1 Construction Phase Mitigation

Pollution Control

There is potential for accidental spills or leaks of fuels, oils, or hydraulic fluids from construction equipment operating near or on the water. Such events, though unlikely if managed properly, could cause localised contamination and acute toxicity to marine organisms.

To mitigate these risks, best-practice construction environmental management must be maintained (see mitigation measures proposed in Section 16.5). Key measures include bunded fuel storage, spill kits, and regular equipment checks to prevent hydrocarbon leaks and timing in-water works outside biologically sensitive periods, where possible. With these controls in place, the residual impact to marine ecology is predicted to be low, temporary, and localised.

Marine Mammal Mitigation

Assessment of the unmitigated impact of injury or disturbance caused by underwater noise from drilling and dredging concluded no likely significant effects to any functional hearing group of marine mammals. This assessment was based on the low abundance of low frequency cetaceans in the area, extremely small distances within which an injury could potentially occur, and the rapid attenuation of sound in coastal waters.

The unmitigated likely significant effect of injury due to underwater noise arising form blasting was evaluated as ‘Moderate’ for harbour seal. The significance of impact was assessed as ‘Slight Negative’ for HF cetaceans and grey seal, and ‘Not Significant’ for LF cetaceans and harbour porpoise.

In accordance with the ‘Guidance to Manage the Risk to Marine Mammals from Man-made Sounds Sources in Irish Waters’ (NPWS, 2014), marine mammal mitigation should be applied for all dredging, drilling and blasting operations. In light of the low potential for significant effect due to dredging and drilling, the requirement for delaying operations following detection of a marine mammal in the mitigation zone during a pre-watch has been revised.

Dredging

- A dedicated Marine Mammal Observer (MMO) shall be on site during all dredging operations, including within the protective berm, and for all operations where an excavator bucket is expected to make contact with the seabed or material on the seabed. For all such activities, the following mitigation measures should be implemented;
- A clear line of communication between MMO and operators will be established.

- All mitigation measures shall be implemented for all species of cetacean, seal, marine turtle, otter and basking shark.
- A 30-minute pre-watch prior to operations shall be undertaken.
- A WMO sea state four or less, 1km or more of visibility beyond the limits of the mitigation zone, and daylight, is required for the MMO to conduct a pre-watch.
- A mitigation zone of 500m radius from the sound source shall be implemented.
- Following the detection of a marine mammal within the mitigation zone during the pre-watch, a delay in commencement of operations shall be adhered to until the animal is visibly observed to have left the mitigation zone, or at least 15 minutes has elapsed since the animal was last detected in the mitigation zone.
- During any breaks in sound of >30 minutes, a full 30-minute pre-watch shall be conducted prior to recommencement of operations.

Drilling

- A dedicated MMO shall be on site during all drilling operations.
- A clear line of communication between the MMO and operators will be established.
- All mitigation measures shall be implemented for all species of cetacean, seal, marine turtle, otter and basking shark.
- A 30-minute pre-watch prior to operations shall be undertaken.
- A WMO sea state four or less, 1km or more of visibility beyond the limits of the mitigation zone, and daylight, is required for the MMO to conduct a pre-watch.
- A mitigation zone of 500m radius from the sound source shall be implemented.
- Following the detection of a marine mammal within the mitigation zone during the pre-watch, a delay in commencement of operations shall be adhered to until the animal is visibly observed to have left the mitigation zone, or at least 15 minutes has elapsed since the animal was last detected in the mitigation zone.
- During any breaks in sound of >30 minutes, a full 30-minute pre-watch shall be conducted prior to recommencement of operations.

Blasting

- A dedicated MMO shall be on site during all blasting operations.
- A clear line of communication between the MMO and operators will be established.
- All mitigation measures shall be implanted for all species of cetacean, seal, marine turtle, otter and basking shark.
- A WMO sea state four or less, 1km or more of visibility beyond the limits of the mitigation zone, and daylight, is required for the MMO to conduct a pre-watch.
- A 30-minute pre-watch prior to operations shall be undertaken. The MMO shall maintain constant surveillance of the mitigation zone from a suitable platform.
- A mitigation zone of 1,000 radius from the sound source shall be implemented.
- Following the detection of a marine mammal within the mitigation zone during the pre-watch, a delay in commencement of operations shall be adhered to until at least 30 minutes elapsed since the animal was last detected in the mitigation zone.

- The time between the end of pre-watch and operations commencing shall be minimised. The MMO shall maintain constant surveillance of the mitigation zone from a suitable platform up until the blast takes place.
- A 30-minute post-blast watch of the mitigation zone shall be undertaken.

Atlantic Salmon and Sea Trout

The unmitigated impact on salmon and sea trout caused by injury resulting from blasting noise was assessed as 'Moderate' in recognition of the presence of vulnerable life stages present in the area, and the sensitivity of the local populations.

To mitigate potential impacts to these species operational restrictions shall be implemented to restrict operations during sensitive periods.

- No blasting shall be conducted between 1st of April and 31st of May, inclusive, as this is the peak migration of returning adults of both species through Cashla Bay.
- No blasting shall be conducted between 1st of June and 31st of August, inclusive, as this is the peak migration of returning adults of both species through Cashla Bay.

Invasive (Marine) Alien Species

The remaining construction works of the deep water quay at Ros an Mhíl presents potential pathways for the introduction and spread of invasive alien species (IAS) in the marine environment. Marine infrastructure developments often act as vectors for IAS through increased vessel traffic, ballast water discharge, and the attachment of non-native organisms to construction materials, equipment, and vessel hulls (Minchin and Nunn, 2013). Quay structures, pontoons, and submerged surfaces can also serve as new hard substrates for colonisation by opportunistic non-native fouling organisms, which may subsequently spread to surrounding natural habitats.

Species of concern in Irish coastal waters include *Didemnum vexillum* (carpet sea squirt), *Crepidula fornicate* (slipper limpet), and *Undaria pinnatifida* (wakame), all of which can outcompete native flora and fauna, alter benthic community structure, and impact commercial aquaculture and fisheries (BIM, 2023). The risk is heightened when construction involves equipment or materials transported from other regions, particularly from areas where IAS are already established.

To minimise the introduction and spread of IAS, a suite of biosecurity measures should be implemented during the construction phase. These include cleaning and inspection of all marine plant, vessels, and construction equipment before deployment on site, sourcing materials such as rock fill from terrestrial, no-marine locations and avoiding material with prior aquatic exposure, ensuring that ballast water management practices comply with IMO Ballast Water Management Convention standards, regular monitoring of new structures for colonisation by non-native species, Development of a Biosecurity Risk Assessment and, if needed, a Rapid Response Plan for any detected IAS.

With proper controls, the likelihood of IAS establishment due to the development is considered low, though continued vigilance during the remainder of the construction phase remains important.

16.7.2 Operational Phase Mitigation

Pollution Control

Surface water runoff during the operational phase has the potential to carry pollutants into Cashla Bay. These pollutants can include fuels and oils from vehicles, sediment run off, heavy metals and chemicals from activity on the deep-water quay. To minimise the risk the deep-water quay has been designed to integrate an appropriate drainage network with interceptors to manage drainage and prevent contamination of the water in Cashla Bay.

The remaining operational mitigation measures required involve the following:

- The installed surface water drainage system and interceptors will be monitored for blockages and integrity and maintained to ensure their ongoing optimal effectiveness;
- No waste will be disposed of at sea;
- Hazardous wastes will be stored in sealed, labelled drums in locked chemical cabinets;
- Spills on deck will be contained and controlled using absorbing materials;
- Vessels without sewage treatment systems will have suitable holding tanks and will bring waste onshore for treatment in the sewage system operated by Údarás na Gaeltachta;
- All chemicals used on-board should be handled in compliance with COSHH instructions on handling hazardous materials;
- Chemicals will be stored appropriately in suitably bunded areas and with material safety data sheets;
- All waste discharges will be monitored and recorded as per vessel procedures.

Invasive Alien Species

The operational phases of the deep water quay at Ros an Mhíl presents a potential pathway for the introduction and spread of invasive alien species (IAS) in the marine environment. Marine infrastructure developments often act as vectors for IAS through increased vessel traffic, ballast water discharge, and the attachment of non-native organisms to construction materials, equipment, and vessel hulls (Minchin and Nunn, 2013). Quay structures, pontoons, and submerged surfaces can also serve as new hard substrates for colonisation by opportunistic non-native fouling organisms, which ma subsequently spread to surrounding natural habitats.

Species of concern in Irish coastal waters include *Didemnum vexillum* (carpet sea squirt), *Crepidula fornicata* (slipper limpet), and *Undaria pinnatifida* (wakame), all of which can outcompete native flora and fauna, alter benthic community structure, and impact commercial aquaculture and fisheries (BIM, 2023). The risk is heightened when construction involves equipment or materials transported from other regions, particularly from areas where IAS are already established. Furthermore, increased post-construction vessel traffic, particularly from non-local operators, may elevate the risk of IAS arrival and establishment via biofouling or ballast water.

To minimise the introduction and spread of IAS, a suite of biosecurity measures should be implemented during the operational phases. These include cleaning and inspection of all marine plant, equipment, and vessels, before deployment on site, sourcing raw materials from terrestrial, non-marine locations and avoiding material with prior aquatic exposure, ensuring that ballast water management practices comply with IMO Ballast Water Management Convention standards, regular monitoring of new structures for colonisation by non-native species, especially during the initial years of operation, Development of a Biosecurity Risk Assessment and, if needed, a Rapid Response Plan for any detected IAS.

With proper controls, the likelihood of IAS establishment due to the development is considered low, though continued vigilance during the operational phase remains important, particularly given the quay's role in facilitating marine access and transport.

16.8 Material Assets Mitigation Measures

16.8.1 Construction Phase

Grid Capacity and Electricity Infrastructure

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and that all services and utilities are maintained unless this has been agreed in advance with ESB networks.

All works in the vicinity of the ESB Networks infrastructure will be carried out in ongoing consultation with ESB Networks and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live overhead/underground electrical lines.

Where new services are required, the Contractor will apply to ESB Networks for a connection permit where appropriate and will adhere to their requirements.

Water Supply/Wastewater Infrastructure

All mitigation measures outlined in the CEMP, Appendix 2A of Volume 3 should also be implemented during the installation of water supply and wastewater infrastructure.

Any temporary water supply for the temporary site compound will be agreed with DAFM and Uisce Éireann. To enable leak detection, a water supply meter will be installed for the temporary water supply. The water meter will monitor consumption of water and will be used to help confirm potential leaks.

Wastewater from welfare facilities on site will drain to integrated wastewater holding tanks associated with the toilet units. The stored effluent will then be collected on a regular basis from site by a permitted waste contractor and removed to a licensed/permitted waste facility for treatment and disposal.

Surface Water Drainage

The contractor will be obliged to consult the CEMP, which includes a SWMP for implementation of mitigation measures to prevent negative effects to existing infrastructure and over ground infrastructure and watercourses.

Prior to excavation the Contractor will ensure that adequate silt management methods are implemented and that silt controls are in place as recommended in the CEMP and SWMP.

All silt controls will be checked on a regular basis in accordance with a monitoring schedule outlined in the CEMP and SWMP.

Waste Management

The Construction Contractor must develop and submit a Resource Waste Management Plan (RWMP) for approval by the relevant authorities in compliance with Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects published by the Department of the Environment, Community and Local Government 2021. The RWMP must detail measures to minimise waste generation and provide details of the specific waste expected to be generated, measures to separate and store wastes on site, and provide details of the proposed waste contractors and destinations for each waste stream.

All measures included in the Waste Management Plan/ Resource Recovery Plan, should be adhered to ensure effective waste management and minimisation, reuse, recycling and disposal of waste material generated during the construction phase of the proposed development.

16.8.2 Operation Phase

Grid Capacity and Electricity Infrastructure

It is not envisaged that any mitigation measures will be necessary during the operational phase of the development.

Water Supply/Wastewater Infrastructure

It is not envisaged that any mitigation measures will be necessary during the operational phase of the development.

Surface Water Drainage

Appropriate maintenance regimes will be put in place to monitor/maintain surface water drainage networks and interceptors. This will include periodic cleaning out of gully pots & drainage channel sumps and cleaning out of pipes if/when blockages occur.

Waste Management

During the operational phase of the quay wall at Ros an Mhíl Fishery Harbour Centre, stringent waste management practices will be implemented in accordance with the Ros an Mhíl Fishery Harbour Centre Port Waste Management Plan.

Emphasis will be placed on minimising waste generation through effective segregation, recycling initiatives, and responsible disposal methods. Regular audits and monitoring will ensure compliance with environmental regulations and standards, aiming to mitigate any potential impacts on the surrounding marine environment.

Training programs for staff and contractors will further promote awareness and adherence to waste reduction strategies, reinforcing commitment to sustainable practices throughout the operational lifecycle of the quay wall.

16.9 Heritage Resources Mitigation Measures

16.9.1 Construction Phase

This assessment has found that there is no risk of negative effects on known archaeological and cultural heritage features as a result of the proposed development. However, there remains a very low possibility of the discovery of isolated underwater cultural heritage features or archaeological artefacts within the turning circle and approach channel that is proposed to be dredged. This risk can never be entirely eliminated. Therefore, attention is drawn to the developer's responsibility under the National Monuments Acts 1994-2004 in regard to the discovery and reporting of archaeological features or objects.

During the dredging of the turning circle and approach channel the marine archaeological environment should be monitored and managed in accordance with the Underwater Unit of the National Monuments Service

requirements. It is proposed that an Archaeological Method Statement be produced, in advance of works taking place, by an underwater archaeologist in consultation with and approved by the Underwater Unit of the National Monuments Service, DAHRRGA. This method statement should include (but not be limited to) methodologies, such as restricted areas or buffer zones, for ensuring that the potential cultural heritage features identified outside the development footprint are protected from inadvertent damage from dredging works.

No additional mitigation is recommended for proposed works as no cultural heritage features were identified or found either within the proposed footprint or in its immediate vicinity, and as such, it has been predicted that no negative effects will occur.

In relation to the proposed development being located in a Gaeltacht region of county Galway, it is proposed that mitigation be put in place to ensure that the Irish language is maintained as the primary cultural expression of the community. Signage will be in Irish, and where bilingual signs are required, Irish will be the predominant language. In addition, when awarding construction contracts DAFM will seek to ensure that Contractors employ Irish speaking workers from with the Gaeltacht area. An Irish speaking Liaison Officer will be employed to the project during this phase of development to facilitate this.

16.9.2 Operation Phase

No heritage measures are required for the operational phase of development.

16.10 Noise and Vibration Mitigation Measures

16.10.1 Construction Phase

The following mitigation measures are recommended to prevent significant effects:

- Unnecessary revving of engines will be avoided, and equipment will be switched off when not in use;
- Internal haul routes will be kept well maintained;
- Plant and vehicles will be sequentially started up rather than all together;
- Use of effective exhaust silence systems or acoustic engine covers as appropriate;
- Plant will always be used in accordance with manufacturer's instructions. Care will be taken to site equipment away from noise sensitive areas. Where possible, loading and unloading will also be carried out away from such areas;
- Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturers specification;
- Screening e.g. noise barriers and bunds will be used as appropriate;
- Vibration barriers can provide limited attenuation and will be used as appropriate;
- Procedures for handling noise and vibration complaints;
- Advance notification of at least 24 hours to all sensitive receptors during critical phases of construction and during blasting events; and
- Blasting will be limited to daytime works only.

In addition to the above, specific mitigation measures outlined in the NVM Ltd 'Continuous Vibration Monitoring Report, refer to Appendix 11D, will also be implemented:

In order to avoid any potential for cosmetic damage due to the site activities, it is advisable for the contractor to conduct further monitoring at identified sensitive locations to continue the collection of measurement data during the project as a means of mitigation.

As a location of noted heritage, the location of the Martello Tower should be considered as one of the sensitive receptor points.

Extract from post Structural Report on the Martello Tower

"*The very robust nature of the Martello Tower combined with the dry ashlar facing and its position remote from the proposed construction works make it unlikely that any damage should occur to its structure during the course of construction of the works. Nevertheless, it is recommenced that during the course of construction which will involve blasting works, vibration monitoring of the Martello Tower should take place on a continuous basis over the period of construction works".*

In the instance of vibration levels giving rise to what could be deemed as human discomfort, the following measures shall be applied during any further work phases.

- Restriction of works which have a potential to cause significant vibration effects with respect to human response to allocated time periods as noted in planning guidance.
- Appropriate mitigation measures applied to all activities in respect to vibration.
- A coordinated communication programme to inform occupants of the buildings and visitors to the port area informing the likelihood of potential vibration impacts from activities being generated on site. (by means of signage or alert notifications on residential alert platforms, local press, SMS notification).

16.10.2 Operation Phase

No noise and vibration effect mitigation measures are required or proposed for the operational phase of development.

16.11 Air Quality and Climate Mitigation Measures

16.11.1 Construction Phase

Dust and Air Quality

A Dust Minimisation Plan will be prepared for the construction phase of the proposed deep water quay as construction activities are likely to generate some dust. The Plan will include the following dust related mitigation measures:

- Site roads will be regularly cleaned and maintained as appropriate. Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic only. Furthermore, any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions;
- Vehicles using site roads will have their speeds restricted where there is a potential for dust generation;
- Vehicles delivering material with dust potential to an off-site location will be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- Vehicles exiting the site will make use of a wheel wash facility where appropriate, prior to entering onto public roads, to ensure mud and other wastes are not tracked onto public roads;
- Public roads outside the site will be regularly inspected for cleanliness, and cleaned as necessary. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind;

- Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods;
- At all times, the procedures put in place will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, appropriate measures will be implemented to rectify the problem; and
- The Dust Minimisation Plan will be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures.

Odour

The CEMP will also include an Odour Management Plan to mitigate the potential for odours from dredging operations. This Plan will utilise the guidance 'Environmental Protection Agency Odour Emissions Guidance Note AG9, 2019. In particular the measures implemented will include:

- Employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;
- Prevent unacceptable odour pollution at all times; and
- Reduce the risk of odour releasing incidents or accidents by anticipating them and planning accordingly.

The Plan will make provision for periodic odour surveys by a suitably qualified expert at nearby sensitive receptors when needed during dredging activities. The frequency of this monitoring will be agreed as part of the overall implementation of the CEMP with Galway County Council.

Traffic Emissions

As described above the air quality effects from construction traffic are not considered to be significant. However, the following good practice mitigation will be employed

- Implementation of a Traffic Management Plan which will be prepared in advance of the construction works and which will form part of the specification for the construction works. This will outline measures to minimise congestion and queuing, reduce distances of deliveries and eliminate unnecessary loads;
- Turning off vehicular engines when not in use. This restriction will be enforced strictly unless the idle function is necessary for security or functionality reasons; and
- Regular maintenance of plant and equipment. Technical inspection of vehicles to ensure they will perform the most efficiently.

Greenhouse Gas Emissions

The IEMA GHG Management Hierarchy (IEMA 2020b) will be followed for effect minimisation. The Hierarchy is as follows:

- First Eliminate
    - Influence business decisions/use to prevent GHG emissions across the lifecycle
    - Potential exists when organisations change, expand, rationalise or move business
    - Transition to new business model, alternative operation or new product/service
- Then Reduce
    - Real and relative (per unit) reductions in carbon and energy
    - Efficiency in operations, processes, fleet and energy management
    - Optimise approaches (e.g. technology) and digital as enablers

- If you can't eliminate or reduce, then Substitute
    - Adopt renewables/low-carbon technologies (on site, transport etc)
    - Reduce carbon (GHG) intensity of energy use and of energy purchased
    - Purchase inputs and services with lower embodied/embedded emissions
- The final option is to Compensate
    - Compensate 'unavoidable' residual emissions (removals, offsets etc)
    - Investigate land management, value chain, asset sharing, carbon credits
    - Support climate action and developing markets (beyond carbon neutral)

Embodied carbon of materials and construction activities will be the primary source of climate effects during the construction phase. The design of the deep water quay, including the re-use of all of the dredged material will minimise the use of high embedded energy materials during construction. This will ensure that the release of greenhouse gases associated with alternative construction methods, for example exporting all of the dredge material off site or importing all of the fill material required for construction of the caisson units, will be avoided.

Measures to reduce the embodied carbon of the construction works will be implemented as follows:

- A construction programme will be created to allow for sufficient time to determine reuse and recycling opportunities;
- Alignment with requirements under the Local and National Climate Action Plan;
- The replacement, where feasible, of concrete containing Portland cement with a low carbon concrete as per the Climate Action Plan;
- The IEMA mitigation hierarchy will be followed (see above);
- A suitably competent contractor will be appointed who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled;
- Materials will be reused on site within the new build areas where possible;
- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods;
- All plant and machinery will be well maintained and inspected regularly;
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site;
- Waste audits will be undertaken that will detail resource recovery best practice and identify materials that can be reused and recycled. Materials will be reused on-site within the areas where possible.
- Sourcing materials locally where possible to reduce transport related CO2 emissions.

16.11.2 Operation Phase

Greenhouse Gas Emissions

All fishing vessels will be required to utilise the onshore power supply to reduce emissions while berthed.

Dust

No dust mitigation measures will be required as there will be no dust effects during the operational phase.

Traffic

No mitigation measures will be required as the operational effect from traffic is not considered significant.

16.12 Landscape and Visual Mitigation Measures

The proposed deep water quay will be located immediately adjacent to the existing Ros an Mhíl Harbour and will provide an extension to this harbour facility. This locational attribute is considered to be the main landscape/seascape and visual mitigation measure in this instance. That is, the proposed quay is much less likely to give rise to significant landscape/seascape and visual effects as the extension and consolidation of an existing harbour facility than if a new and more isolated location was proposed.

The proposed deep water quay and associated fishing vessels, and onshore equipment/machinery cannot be readily screened from view, nor is this considered necessary in the context of the existing harbour complex. Instead, visual assimilation is considered more appropriate where possible. Aside from the physical protection provided by the rock armour that will be placed along the northern and southern faces of the deep-water quay, this protection will also help to blend the harsh geometry of the quay with the rocky shoreline that flanks it. The siting and design of the proposed deep-water quay are inherent to the appraisal of landscape/seascape and visual effects herein and thus, the predicted effects (pre-mitigation) are also the residual effects (post-mitigation) in this instance.

16.13 Traffic Mitigation Measures

16.13.1 Construction Phase

During construction, a wheel wash facility will be provided at the construction site to wash truck tyres leaving the construction site; together with a dust suppression system.

Heavy vehicle construction truck delivery movements will be restricted from passing the Local Primary School (Scoil Colmcille) during the periods of the school starting time from 8.45 a.m. and 9.00a.m. and finishes times from 2.30 p.m. and 2.50 p.m.

16.13.2 Operation Phase

The proposed development will not generate additional operational traffic, and no mitigation measures are required.