



Outline Construction Method Statement

Port Pier Extension

Report No. CM1379-MA-R003-R001

October 2025

Revision 00

[Donegal County Council](#)



**Comhairle Contae
Dhún na nGall**
Donegal County Council

Document Control

Project

Port Pier Extension

Client

Donegal County Council

Document

Outline Construction Method Statement

Report Number:

CM1379-MA-R003-R001

Document Checking:

Date	Rev	Details of Issue	Prepared by	Checked by	Approved by
Oct 2025	00	ABP Planning Submission	DC	POC	SG

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[1] Introduction

[1.1] Purpose

Ayesa has been appointed by Donegal County Council (DCC) (the “Client”) to provide engineering consultancy services for the Port Pier Extension. This Outline Construction Method Statement (OCMS) aims to provide a high-level method statement of the project's construction works, its planning context, and its potential impact on the surrounding area. The method statement provided in this document is based on the preliminary design and limited geotechnical information, which is subject to change.

It is recommended that the OCMS and the accompanying drawings be reviewed together to understand the proposed development and its potential implications.

[1.2] Site Location

Port Pier is located within Inver Bay, on the Northern shoreline of Donegal Bay on the Western coast of Ireland, see Figure 1-1. The site is located between the town of Donegal and Killybegs and can be accessed via the N56.



Figure 1-1: Port Pier Inver Locality Map

The site is strategically located to provide easy access to Inver Bay, making it ideal for fishing vessels. The location's sheltered nature also provides a safe harbour for vessels during harsh weather conditions, protecting them from waves and strong winds.

[1.3] Development Description

The extension of Port Pier includes the addition of two sections: 44.5m x 10.1m to the south and 49.3m x 10.1m in an easterly direction. An additional area of approximately 1200m² behind the existing pier will be reclaimed using predominantly the dredged material. To negate the existing harbour's characteristically shallow nature, proposed bed levels within the new extension will be reduced to ensure that a suitable depth is achieved. This allows the harbour

to remain operational, crucially through a broader range of tides, increasing the overall utilisation of the facility.

Prior to bed level reduction works, a separate 42.8m length sheet piled retaining wall will be constructed in front of the southern face of the existing concrete slipway, located on the southern side of the existing pier. The purpose of this wall is to protect the slipway from being undermined during the dredging works and continual support permanently thereafter.

[1.4] Background

Port Pier is a masonry/concrete pier with an east-west alignment and a small concrete slipway on the same alignment. The harbour is in a sheltered location on the western side of Inver Bay, where it is protected against offshore waves generated in the Atlantic Ocean. Almost the whole harbour area dries out at Lowest Astronomical Tide (LAT) but is covered at high tides. The existing slipway becomes exposed at mid-tide, so vessels can only be launched from it during high tide.



Figure 2: Port Pier, Inver



Figure 3: Existing Port Pier

In 2023, a new slipway to launch at shallower water levels was constructed on the southern side of the existing pier, as shown below.



Figure 4: New Slipway constructed in 2023

[1.5] Programme

The timing of the works will largely depend on statutory and regulatory requirements and receipt of the foreshore license. The project is expected to commence during 2025/2026 and be completed within 6 months.

[2] Construction Environmental Management Plan

This section comprises a high-level Construction Environmental Management Plan (CEMP) for the works. The final CEMP can only be prepared subject to planning permission, foreshore consent, and other consents being provided.

[2.1] Responsible Person

Donegal County Council will appoint a competent and experienced Contractor. The tender will require that the Contractor is suitably qualified and have relevant experience in Environmental Construction Management and Health and Safety. Regular meetings will be held between the Contractor and Fingal County Council representatives, focusing on the CEMP. Some of the principal duties and responsibilities of this role include:

- Overall responsibility for the implementation of the CEMP;
- Allocating the correct resources to ensure the successful implementation of the CEMP; and,
- Assist in the management review of the CEMP for suitability and effectiveness.

[2.1.1] Construction Manager

The Construction Manager is directly responsible to the Construction Director in successfully executing the proposed development. The principal duties and responsibilities of this role in respect of the CEMP include:

- To report to the Construction Director on the ongoing performance and development of the CEMP;
- To discharge their responsibilities as will be specified within the final CEMP; and,
- To support and augment the Construction Management Team (CMT) through the provision of adequate resources and facilities for the duration of the implementation of the CEMP.

[2.1.2] Environmental Officer

The CMT Environmental Officer will have responsibility for daily tasks on site; some of the principal duties and responsibilities of this role include:

- Report to the Construction Manager on the environmental performance of staff, employees and contractors.
- Ensure compliance with environmental procedures and method statements; and,
- Ensure the development of the CEMP and that environmental procedures, method statements and work instructions are adequately executed and adhered to concerning environmental requirements on-site daily.

[2.2] Working Hours

- Water levels and inclement weather may restrict some work.

- Night-time and weekend work are not permitted except with the approval of the Employer's Representative.
- Further restrictions on working hours may be put in place due to the noise induced during the piling and dredging works.
- The PSCS will liaise with the Client and Engineer regarding allowable working hours.
- As is good practice, no lone working is permitted on the development at any time. The PSCS/Main Contractor must ensure they always provide a supervisor for all Work outside of normal working hours.

The following restrictions apply to all areas of the development of the project:

Table 2-1: Site Working Hours

Day	Working Hours
Monday to Saturday	8:00 am – 8:00 pm (or sunset, whichever is first)
Sundays and Bank Holidays	No Working

[2.3] Traffic Management Plan

[2.3.1] Overview

As required, Donegal County Council, Transport Infrastructure Ireland (TII), and the National Transport Authority (NTA) will agree upon a Traffic Management Plan (TMP).

The appointed Contractor will be responsible for:

- The creation and implementation of the TMP;
- Design, planning, installation, maintenance and decommissioning of traffic safety measures as required;
- Detailed traffic management plans compiled per Chapter 8 of the Traffic Signs Manual, Department of Transport, 2010, including:
 - Phasing of works
 - Detailed traffic management drawings
 - Traffic management of marine plant
 - Timing of operations and works
 - Road lighting
- Compliance with the Temporary Closing of Roads Regulations and amendments (Roads Act 1993);
- Public signage;
- Temporary warning and information signs;
- Traffic cones and taping;
- Road danger lamps;
- Temporary construction of roadways;
- Appointment of Traffic Safety and Control Officer, responsible for:

- Liaison with Donegal County Council Traffic Manager and An Garda Siochana
- Management of traffic
- Notification of accidents to An Garda Siochana
- Ensure the safe working operation of plant and machinery
- Pre-and post-work road condition surveys;
- Issuing of notices to the local newspapers where required;
- Cleaning of internal site roads and adjacent site entrance road; and,
- Making traffic orders and authorisation of signage and signals.

[2.3.2] Noise

The Contractor shall take all necessary precautions to reduce the noise hazards to site operatives and the public in general. The Contractor will comply with the standards in BS 5228-1-1: Code Of Practice for Noise and Vibration Control on Construction and Open Sites. [1].

The Contractor shall limit excessive noise-generating activities to Daylight Hours, as discussed in Section [2.2], unless the Engineer Representative consents.

All construction activities that have the potential to generate excessive noise or vibration shall be carried out during permitted hours. Noise levels shall be limited to:

- 75 DBA between 8.00hrs – 20.00hrs (Mon to Sat).
- 45 DBA for all other times

The Contractor shall comply with European Communities (Protection of Workers) (Exposure to Noise) Regulations, 1990 [2].

[2.3.3] Vibration

Vibration monitoring shall be carried out during piling operations to ensure that vibration levels are kept within acceptable limits.

The Contractor shall take all necessary precautions to reduce the noise hazards to site operatives and the public in general. The Contractor will comply with the standards BS 5228-2: Code of Practice for Noise and Vibration Control on Construction and Open Sites [3].

[2.4] Pollution Prevention

The Contractor will be required to develop a pollution prevention plan involving identifying potential sources of pollution, implementing measures to reduce or eliminate those sources, and monitoring the effectiveness of those measures. During dredging, reclamation and piling associated with constructing a new pier, critical pollution prevention is centred on spills/accidental releases of hazardous substances or pollutants that could harm human health and the environment. Spill prevention measures that can be taken:

- Identify potential spill hazards: Conduct a hazard assessment to identify potential spill hazards, such as chemicals, fuels, and waste materials, that are present in your facility or operation.

- **Develop a spill prevention plan:** Develop a spill prevention plan that outlines the procedures for preventing, containing, and responding to spills. The plan should include spill response procedures, spill clean-up procedures, and the roles and responsibilities of employees and contractors.
- **Implement spill prevention measures:** Implement spill prevention measures, such as installing spill containment systems, secondary containment, and leak detection devices. Ensure that all hazardous materials are stored in appropriate containers and properly labelled.
- **Conduct regular inspections:** Conduct regular inspections of the facility or operation to ensure all spill prevention measures are in place and working effectively. Inspections should include checking for leaks, spills, and other potential hazards.
- **Provide employee training:** Provide employee training on spill prevention measures and spill response procedures. Ensure that all employees know the potential spill hazards and how to respond during a spill.
- **Respond promptly to spills:** In the event of a spill, follow the spill response procedures outlined in your spill prevention plan. This spill response may involve evacuating the area, containing the spill, and contacting emergency responders.
- **Review and update the spill prevention plan:** Regularly review and update the plan to ensure it remains effective and current with current regulations and best practices.
- **Use environmentally friendly materials:** The Contractor should use environmentally friendly materials during construction. For instance, they can use bio-degradable lubricants and hydraulic fluids for their machinery and equipment.

Other project pollution prevention measures:

- Proper handling and disposal of construction waste, such as excess soil and debris, is essential in preventing pollution. Construction waste should be segregated and disposed of at authorised facilities.
- Silt curtains help limit sediment dispersion and reduce the environmental impact on the surrounding water bodies,
- Regular monitoring of water quality can be conducted to assess the effectiveness of the mitigation measures and detect any potential pollution events. Monitoring can also provide early warning of any potential environmental impacts and allow for prompt action to be taken to prevent further pollution,
- Construction activities can generate noise levels that exceed local noise regulations and impact nearby residents. Noise mitigation measures such as using noise barriers or mufflers on equipment can be used to minimise noise levels,

The Pollution Prevention Plan is a “live” document and can be continually improved based on monitoring and evaluation results observed during the works. This may involve revising the plan, implementing new measures, and ensuring that employees and contractors are aware of any changes to the plan.

[2.5] Health and Safety

Donegal County Council understands the Client’s duties per the Safety, Health and Welfare at Work Act 2005 provisions and the Safety, Health and Welfare at Work (Construction Regulations) 291 of 2013.

A Project Supervisor Design Process has already been appointed (Ayesa), and the Project Supervisor Construction Stage will be appointed prior to the construction stage of the Contract.

[2.6] Marine Mammal Observer (MMO)

NPWS 'Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters – January 2014' (NPWS, 2014) recommended that stated mitigation procedures for dredging and piling are followed and monitored by a suitable qualified Marine Mammal Observer (MMO).

An Assessment of risk to marine mammals has been undertaken and outlined the following requirements:

A qualified and experienced marine mammal observer (MMO) shall be appointed to monitor marine mammals and to log all relevant events using standardised data forms (as presented in Appendix 7; NPWS, 2014).

[2.6.1] Dredging

A dedicated Marine Mammal Observer will conduct a 30-minute watch for marine mammals within 500m of the dredging vessel prior to start-up. If a seal, cetacean, basking shark, turtle, or otter is sighted within 100m of the vessel, start-up must be delayed until the animal is observed to move outside the mitigation zone or 30 minutes have passed without the animal being sighted within the mitigation zone.

[2.6.1.1] Pre-Start Monitoring

Dredging activities shall only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring, as determined by the MMO, is not possible, the sound-producing activities shall be postponed until effective visual monitoring is possible.

An agreed-upon and clear on-site communication signal must be used between the MMO and the Works Superintendent to determine whether the relevant activity may proceed or resume following a break (see below). It shall only proceed upon positive confirmation with the MMO.

In waters up to 200m deep, the MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO.

This prescribed Pre-Start Monitoring shall subsequently be followed immediately by normal dredging operations. The delay between the end of Pre-Start Monitoring and the necessary full dredging output must be minimised.

[2.6.1.2] Dredging Operations

Once normal dredging operations commence, there is no requirement to halt or discontinue the activity at nighttime if weather or visibility conditions deteriorate or if marine mammals occur within a 500m radial distance of the sound source, i.e., within the Monitored Zone.

[2.6.1.3] Breaks in Sound Output

If dredging sound output is interrupted for a period greater than 30 minutes (e.g., due to equipment failure, shut-down, or location change), all Pre-Start Monitoring must be undertaken in accordance with the above conditions prior to the recommencement of dredging activity.

[2.6.1.4] Reporting

The regulatory authority must receive full reporting on MMO operations and mitigation undertaken, as outlined in Appendix 7 (NPWS, 2014).

[2.6.2] Pile Driving

1. A qualified and experienced marine mammal observer (MMO) shall be appointed to monitor marine mammals and to log all relevant events using standardised data forms (Appendix 7).
2. Unless information specific to the location and/or plan/project is otherwise available to inform the mitigation process (e.g., specific sound propagation and/or attenuation data) and a distance modification has been agreed with the Regulatory Authority, pile driving activity shall not commence if marine mammals are detected within a 1,000m radial distance of the pile driving sound source, i.e., within the Monitored Zone.

[2.6.2.1] Pre-Start Monitoring

3. Pile driving activities shall only commence during daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring, as determined by the MMO, is not possible, sound-producing activities shall be postponed until effective visual monitoring is possible.
4. The MMO and the Works Superintendent must use an agreed-upon and clear on-site communication signal to determine whether the relevant activity may proceed or resume following a break (see below). It shall only proceed upon positive confirmation with the MMO.
5. In waters up to 200m deep, the MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO.
6. This prescribed Pre-Start Monitoring shall subsequently be followed by an appropriate Ramp-Up Procedure, which should include continued monitoring by the MMO.

[2.6.2.2] Ramp-Up Procedure

7. In commencing a pile driving operation where the output peak sound pressure level (in water) from any source, including equipment testing, exceeds 170 dB re: 1µPa @1m, an appropriate Ramp-up Procedure (i.e., “soft-start”) must be used. The procedure for use should be informed by the risk assessment undertaken, giving due consideration to the pile specification, the driving mechanism, the receiving substrate, the duration of the activity, the receiving environment and species therein, and other information (see section 3 of DAHG, 2014).
8. Where possible, according to the operational parameters of the equipment and materials concerned, the underwater acoustic energy output shall commence from a

lower energy start-up (i.e., a peak sound pressure level not exceeding 170 dB re: 1µPa @1m) and thereafter be allowed to gradually build up to the necessary maximum output over a period of 20-40 minutes.

9. This controlled build-up of acoustic energy output shall occur in consistent stages to provide a steady and gradual increase over the ramp-up period.
10. Where the measures outlined in steps 8 and 9 are not possible, alternatives must be examined whereby the underwater output of acoustic energy is introduced in a consistent, sequential and gradual manner over a period of 20-40 minutes prior to the commencement of the full necessary output.
11. In all cases where a Ramp-Up Procedure is employed, the delay between the end of the ramp-up and the necessary full output must be minimised to prevent unnecessary high-level sound from entering the environment.
12. Once an appropriate and effective Ramp-Up Procedure commences, there is no requirement to halt or discontinue the procedure at night-time, nor if weather or visibility conditions deteriorate nor if marine mammals occur within a 1,000m radial distance of the sound source, i.e., within the Monitored Zone.

[2.6.2.3] Breaks in sound output

13. If there is a break in pile driving sound output for a period greater than 30 minutes (e.g., due to equipment failure, shut-down or location change), then all Pre-Start Monitoring and a subsequent Ramp-up Procedures (where appropriate following Pre-Start Monitoring) must be undertaken.
14. For higher output pile driving operations which have the potential to produce injurious levels of underwater sound (see sections 2.4, 3.2 of DAHG, 2014), as informed by the associated risk assessment, there is likely to be a regulatory requirement to adopt a shorter 5-10 minute break limit after which period all Pre-Start Monitoring and a subsequent Ramp-up Procedure (where appropriate following Pre-Start Monitoring) shall recommence as for start-up.

[2.6.2.4] Reporting

15. The Regulatory Authority must receive full reporting on MMO operations and mitigation, as outlined in Appendix 7 of DAHG, 2014.

Furthermore, Section 7 of the NIS details mitigation measures pertaining to the project's construction phase (including pollution and sediment controls).

[2.7] Management of Dust, Odour and Air Quality

[2.7.1] Management of Dust

Due to the temporary nature of the proposed works, noise and dust are anticipated to generate a short-term, slight adverse influence during the construction stage. Dust and particulate matter emissions may arise from delivering material and other goods to the site combined with storing material on the site; however, if adequate mitigation measures are adhered to, dust and, ultimately, air quality is not anticipated to be a concern.

Potential causes of dust and particulate matter emissions may include the following:

- Stockpiles and storage compounds – the stockpiling of material for long periods will increase dust emissions. This is dependent on the type of material, the quantity of silt contained therein and the moisture content of the material;
- Demolition works;
- Excavation and earthworks;
- Concrete batching;
- Cutting, grinding and sawing;
- Scabbling; and,
- Waste disposal and burning.

[2.7.1.1] Mitigation Measures

The following mitigation measures are proposed:

- Public roads outside the development shall be regularly checked for cleanliness and cleaned as necessary;
- Stockpiling of material shall be minimised, and exposure to wind shall be minimised where possible;
- Site roads shall be regularly swept, cleaned and maintained as appropriate. Vehicles departing the development shall be subject to wheel washing;
- Stockpiled material and gravel surfaces shall be sprayed with water if required; and,
- Burning shall not be permitted.

[2.7.2] Management of Odour

The disturbance of seabed sediments could create an odour. These works will be carried out in the coastal environment, where wind speeds are generally greater than inshore, as there are no physical obstructions. This will result in the rapid dispersion of odours, not likely to transport them to sensitive receptors within the harbour or extended area.

To address any odour complaints, we have a robust investigation plan in place. If a complaint is verified, we will promptly implement appropriate mitigation measures, such as temporarily suspending the works, to address the issue.

[2.8] Contamination Management

Measures shall be implemented to minimise the impact of construction activities on the environment. These measures include erosion and sediment control measures, suitable waste disposal, spill prevention and spill response procedures.

[2.9] Sediment Control

Sediment control/prevention measures will be implemented to minimise the impact of sediment dispersion on the receiving environment. The measure includes the use of:

- Silt Curtains/Turbidity barriers to contain sediment plumes and prevent dispersion.

- Sediment retention ponds to allow sediment to settle out before being discharged.

[3] Outline Construction Methodology

[3.1] Site Survey and Permits

[3.1.1] Geotechnical Investigation

The geotechnical investigation (GI) is a pivotal step in any piling and dredging project. It provides crucial data about the anticipated dredge material and the founding conditions for the piles, informing our design decisions and ensuring the work is carried out effectively.

The GI campaign is typically undertaken during the design stage by the Designer and provided to the Contractor as information for the tender pack. The Contractor is responsible for confirming that the material is suitable for piling and that any performance requirements set in the Works Specification can be met with the proposed material specification.

[3.2] Pre-Construction Considerations

After the Contract has been awarded, there will be a pre-mobilisation phase before the project commences on-site. During this phase, the following items will be progressed as detailed in the Construction Programme included in the work proposals:

- Project Documentation;
- Design Development;
- Consultations with the Client and any other relevant third parties/stakeholders; and,
- Procurement of labour, plant, materials & subcontractors.

[3.2.1] Site Preparation

Clearing the development of any obstructions is a crucial first step to initialising the works, as it ensures that the construction site is safe and free of any hazards that may impede the construction process. The clearance process will likely involve the removal of vehicles parked on the pier, clearance of any removal furniture and debris, and partial closure of the pier during the specific works, to be agreed upon with the Harbour Master and DCC.

Prior to the commencement of construction, the Contractor will need to carry out a precondition survey, aiming to identify and record the condition of the existing pier and surrounding area at the time of handover to the Contractor. This survey will also require a full inspection report to be submitted alongside photographic evidence.

[3.3] Site Compound and Storage Area

The site compound and storage area are proposed at the left side of the existing pier entrance.

The storage of materials, containers and waste, however temporary, will follow best practices at all times and be stored in designated areas within the Site compound. Potentially polluting material, such as fuels or oils, will be stored in bunded areas, on an impermeable base, and undercover to prevent damage from the elements. All containers will be stored upright and labelled. Sufficient waste storage will be supplied near all working areas.



Figure 5: Proposed site compound and storage area

[3.3.1] Parking Spaces

Designated parking spaces will be made available to the contractor outside of the existing pier for the duration of the works. Additionally, public parking spaces can be found to the north of the site.

[3.3.2] Site Security and Site Boundaries

The site will be secured by security site boundary fencing and exclusion signage installed, warning third parties of the potential hazards on site and thus excluding unauthorised access within the works site.

The site boundaries will be laid out with visual markers, and these boundaries will be communicated to all personnel. Works will be confined to the proposed site boundaries unless instructed otherwise by the Employers Representative.

[3.4] Temporary Works and Plant Requirements

The following temporary works may need to be considered by the Contractor to execute the works:

- Pumping systems – These may be used to manage water levels during construction, such as filling the encapsulated sheet pile section with the selected rock fill.
- Access control and security – This will need to be installed to prevent access to the existing sheet pile section during construction and any other areas used for site compound or access.
- Piling gate—This will need to be designed by a qualified temporary works designer. The temporary works will be required to prevent damage to the existing pier during the piling works. Welding will likely be required for the implementation of the piling gate.

Thus, welding would need to be included in both the temporary works design for the piling gate and addressed in the relevant and required Health and safety documentation and certification, including being undertaken by a certified welder.

Further temporary works may be required based on the Contractor's proposed methodology, i.e. landside or waterside construction. Any temporary works required for the proposed methodology foreseen by the Contractor will need to be accompanied by temporary works designs undertaken by a suitably qualified designer, as well as accompanied by relevant testing, Health and safety documentation and certification, be undertaken by suitably qualified personnel, and any other supporting documentation required for the design.

The Contractor will be required to design and construct all temporary works, as required, to a high standard and with consideration for their impact on the environment and neighbouring areas. Appropriate permits and approvals may also be required before these works can be carried out.

[3.5] Vibration Monitoring

A variety of the plant will be in use, such as excavators, lifting equipment, dumper trucks, compressors, and generators. Vehicular movements to and from the site will use the existing local road network towards the harbour.

Due to the nature of the activities undertaken on a construction site, there is potential for generating increased noise levels. The potential for vibration at neighbouring buildings and residential dwellings for this project is limited to demolition works of the existing seawall, installation of the new sheet piles, reclamation, dredging and HGV movements. The proposed works are, however, unlikely to result in significant vibration at local residences from on-site construction activities due to the separation distances. A vibration monitoring campaign during construction will be mandatory for the Contractor. Should the Contractor find that the construction works are exceeding the vibrational capacity, the Contractor shall stop the works immediately and inform the Engineer of the exceedance to enable appropriate adjustments to mitigate the impact.

Some additional possible mitigation measures to consider to be implemented Contractor during the construction phase are as follows:

- Pre-Breaking Assessment: Assess the surrounding structures before construction. Identify any weak points or areas of concern that may require special attention during the breaking process.
- Protective Barriers: Install protective barriers, such as geotextile or rubber mats, between the breaking equipment and the pier structure. These barriers help absorb vibrations and protect the structure from direct impact.
- Sequential Breaking: Breaking the wall and deck into smaller sections helps distribute the impact and reduces the potential for high-intensity vibrations.

[3.5.1] Codes, Standards and Guidelines

While the specific standards and guidelines for similar projects in Ireland may vary depending on the scope and location of the project, some of the key standards and guidelines that contractors may need to adhere to include:

- Environmental Protection Agency (EPA) Guidelines

- The Planning and Development Act
- The Foreshore Act
- Environmental Impact Assessment (EIA) Directive
- Habitats Directive and Birds Directive
- Waste Management Acts and Regulations
- Construction Industry Federation (CIF) Guidelines
- Safety, Health and Welfare at Work Act
- National Parks and Wildlife Service (NPWS) Guidelines
- Marine Strategy Framework Directive
- Strategic Environmental Assessment (SEA) Directive
- Natura 2000 Network Guidelines
- European Union (EIA) (Foreshore) Regulations
- Local Development Plans and County Development Plans
- Coastal Zone Management Guidelines
- National Biodiversity Action Plan
- Water Framework Directive

[3.6] Site Restrictions

- The Contractor must be aware that the works will involve working within an intertidal zone, be subject to tide and wave action, and must schedule works accordingly. Adequate planning and actioning of any appropriate precautions must be undertaken before the commencement of the works.
- The Contractor must be aware that the existing sheet pile section of the pier is restricted from loading.
- The Contractor is to provide details of the suitable plant to undertake the works. The Contractor must confirm the plant's suitability to operate in areas affected by tide and wave actions. All plant is required to be clean on arrival at the site.
- The Contractor must be aware that they will be working in a live harbour environment and will, therefore, need to cordon off any landside site compound facilities and access points for the duration of the works. The Contractor will also need to coordinate with the Harbour Master to ensure vessel traffic does not impede on construction works and vice versa.
- Dust control measures should be employed for activities that generate high dust levels. The work areas should be appropriately screened to prevent dust migration to areas outside the work area. The Contractor must ensure the premises or parked cars are not affected by dust generated by the works.
- The successful Contractor must prepare a comprehensive Method Statement outlining proposals for access and delivery of materials to the site, any crange of heavy materials, and storage of materials on-site.
- A comprehensive Method Statement will also be required to complete work in areas which interact with residents, the public, and road users.

- The above method statements include details on how the Contractor intends to prevent damage to fences, gates, walls, roads, or paved areas and other site features to remain in position during the execution of the Works. The Contractor is to bear the cost of repairing any damage arising from the execution of the Work.
- The Contractor must provide the Contractor's welfare provisions such as toilet and canteen facilities, office accommodation, meeting room, etc.
- The route used to transport goods or equipment to a specific site must be considered. Planning the plant delivery and route is essential, considering potential obstacles hindering or impeding transportation.
- The Contractor shall be required to determine the exact location of any local services within the construction area and not explicitly taken from any drawings or site logs, as the accuracy of these cannot be determined.
- The Contractor shall be required to maintain clear communication lines with the Harbour Master. This shall include daily consultations informing the Harbour Master of the ongoing operations.

[3.7] Plant

It is envisaged that the following plant will be mobilised to the site:

- 30-tonne excavator
- Jack-up Barge
- Pile driving rig
- 32-tonne tipper truck
- Concrete truck
- 5t roller
- Mobile Crane
- Other minor plant

The plant will be transported by road to the site. The plant and machinery shall be checked to ensure that they are in good working condition and comply with relevant safety and environmental regulations. Personnel involved in mobilising the plant and machinery shall be trained and provided with personal protective equipment (PPE). The plant and machinery shall be positioned in designated areas that do not obstruct the existing quay or cause any safety hazards.

[3.8] Proposed Works

The pier structure will consist of two parallel rows of sheet piles adequately tied back with tie rods. The material dredged will be used as fill between the sheet piles and the reclamation back of the quay. The top layer of fill will be selected engineered fill. The pier structure will be capped with a concrete deck.

Prior to any dredging activities, a sheet piled retaining wall with concrete capping beam will be constructed along the southern face of the existing concrete slipway, located on the southern side of the existing pier. The wall will provide a temporary support to the slipway, preventing undermining during dredging activities, and continual support permanently thereafter.

[3.8.1] General

- Establish the site compound and storage areas.
- Erect all site notices.
- Secure site boundaries with temporary fencing.
- Establish the compound at the end of the masonry section of the pier or the Contractor's preferred location. The finalised location is to be agreed upon between the client and the Contractor before construction.
- Installation of silt curtains surrounding the site.

[3.8.2] Demolition

The proposed entrance to the new development will be located to the RHS of the existing pier entrance. As such, it will be necessary to demolish a small section of the existing stone wall at this location, approximately 11.3m in length.

[3.8.3] Dredging

As indicated on the drawings, an excavator will be used to create a dredge pocket. The dredging operation will either be conducted in the dry during low water or supported by a barge when the site is inundated with water.

If suitable, the dredged/excavated material will be used as fill material for the new pier extension. Furthermore, the area behind the pier will also be reclaimed using the dredged material. The excavator will either dump the dredged material directly between the sheet piles or load it onto tipper trucks for transportation. When the site is inundated, a hopper barge may be required to load and transport the material. Approximately 3,500m³ of material will be dredged.

If suitable, it is not anticipated there will be any excess dredge material, however, if it is found to be unsuitable for use as fill, it will be transported and disposed of at a suitable landside facility. The dredge material will first be stored in a bunded area and allowed to dry prior to transportation.

[3.8.4] Pier Construction

The following sequence describes the construction of the Pier:

- Sheet piles for both the proposed development and retaining wall will be driven into the seabed as shown on the drawings, using an excavator or crane fitted with a vibratory pile hammer (or similar).
- The sheet piled tie-back system will be installed, which will consist of a series of tie-rods and waling beams.
- The pier will be filled with material either from the dredging operation or selected fill imported from commercial sources.
- The area behind the pier will also be reclaimed using the dredged material.
- The fill will be compacted in layers (approximately 300mm) using a 5t roller (or similar).

- Selected engineering fill will be used in the top 800mm (min) to create a base layer for the concrete slab.
- The selected fill will be compacted in layers (approximately 300mm) using a 5t roller (or similar).
- A reinforced concrete capping slab will be constructed on top of the sheet piles and engineered fill. This will involve installing rebar cages, shuttering, and concrete casting.
- In unison, a new capping beam to fix the head of the sheet piled retaining wall to the foundation of the existing concrete slipway will be constructed.
- A sea wall on the southern face of the east-west extension will be constructed on top of the capping beam.
- Quayside services such as lighting and utilities shall be installed in accordance with relevant standards and regulations.
- Along the southern face of the structure, a rock armour revetment will be formed for scour protection, protecting the structure from tidal erosion.

[4] References

- [1] BSI Standards, BS 5228-1: Code of practice for noise and vibration control on construction and open sites - Noise, 2009.
- [2] European Union, "European Communities (Protection Of Workers) (Exposure To Noise) Regulations," 1990.
- [3] BSI Standards, "BS 5228-2: Code Of Practice for Noise and Vibration Control on Construction and Open Sites," 2009.
- [4] Department of Arts, Heritage, and the Gaeltacht, "Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters," 2014.