

PROJECT: ROSSLYN PIER REPAIR WORKS

PROCEDURE FOR REPAIR WORKS TO BE CARRIED OUT

1.0 SCOPE

This method statement outlines the procedures and safety measures to be followed by Summer Isles Enterprises Ltd for the remedial works at Rosslyn Pier. The scope of works includes the construction of a new capping slab, repointing the pier, and constructing a concrete berm. The statement also includes the removal of marine growth and loose material, installation of dowels, erection of shutter, placement of support bag work, and concrete pouring.

2.0 STAFF

The following staff will be involved with various aspects of the works:

Name	Title	Company	Task
Ben Truter	Fleet Manager	SIE	Installing silt curtain around pier
Keith Jones	Senior Maritime Civil Engineer	Arch Henderson	Advising on all structural engineering works
Laura Carse	Assistant Project Manager	Atlantic 58	Advising on all environmental related activities
Flavius Plesca	Construction Supervisor	SIE	Ensuring all personnel are adhering to work and safety procedures
Neil MacKenzie	Construction Manager	SIE	Overall management of the works and ALL other staff involved with the works.
Robin Irvine	Director	SIE	Coordination on project with all stakeholders and licencing authorities
Richie Hart	H&S Manager	SIE	Ensuring all relevant H&S documentation is in place and monitoring of works to ensure H&S procedures are being adhered to.

3.0 HAZARDS

The following hazards are possible during the works:

- Machinery. Risk of being struck by machine
- Inexperienced excavator driver
- Working too close to edge of excavation resulting in fall from height.
- Intrusion by unauthorised persons into working zone.
- Uneven ground.
- Pollution from spoil and machinery fluids

The control measures necessary to minimise risk are described in the procedures below.

5.0 RESPONSIBILITIES

The Construction Manager is responsible for the following:

- Ensuring the appropriate measures have been put in place for access and egress to the work location considering any associated risks and hazards and public interface
- Providing all staff involved with the work a pre job briefing. The pre job briefing will include:
 - Access and egress requirements
 - Point of work risk assessment
 - Potential hazard reporting
 - Contaminated land risks
 - Specific PPE requirements
 - Buried service precautions
 - Potential slips, trips, and falls
- General site, safety, and environmental management
- Ensuring temporary barriers are erected
- Ensuring everybody is safe throughout the operations.
- Checking the certification of Machine operator(s) and then brief machine operator as to the hand signalling to be used during the site works to ensure good communication.
- Having the final say on termination of the works depending on stability or water entry'

The machine operator is responsible for the following:

- Checking the condition of machine (Pre-Use Checks).
- Operating

5.2 Marine Environment

Rosslyn Pier is near a Special Area of Conservation for Harbour Porpoise and within a Marine Protected Area for benthic features. Therefore, during the remedial works on the pier, appropriate mitigation measures will be taken to ensure there is no contamination or impact to the marine environment.

Rosslyn pier is remote and historic and is not part of an industrial site. The presence of the existing concrete slab will have formed a cap to prevent ingress of any historic fuel spillages.

An otter survey to determine if there were any active holts within 200m of the pier was carried out and no active holts were discovered during the survey.

Off-Site Concrete Mixing

Concrete Mixing Facility: All concrete mixing activities will be conducted at an off-site facility, away from the immediate proximity of the pier and marine environment. Concrete will then be transported to work area using portable units. This approach minimises the potential for on-site spills or accidental discharge of concrete materials into the water. It also reduces the likelihood of water pollution and sedimentation, preserving the water and marine ecosystem.

Dust Control Measures: The concrete mixing facility will implement appropriate dust control measures, such as the use of water sprayers, dust suppression agents, or enclosures, to minimize airborne dust emissions during the mixing process.

Rapid Set Cement: Using a Rapid set cement, in line with BS 8500, can significantly reduce the setting time of concrete. This approach minimizes the duration of disturbance and allows for faster completion of the repair work, thereby reducing potential impacts on the environment.

Silt Curtain Installation

Silt curtains, also known as turbidity curtains or sediment curtains, are commonly used in construction and marine projects to prevent the spread of silt, sediment, and other suspended particles in the water. These curtains are fabricated using a combination of seamless welding with additional re-enforcement secured by lock stitching with a rot-proof, high-strength thread.

Sediment Containment: The Silt curtain will act as a physical barrier, effectively containing and confining sediments within a defined area. When installed, they create a barrier that prevents the spread of silt, clay, fine particles, and other suspended materials generated during the construction activities.

Turbidity Reduction: The Silt curtain helps reduce turbidity, which refers to the cloudiness or haziness caused by suspended particles in the water. By confining sediments within a specific area, the curtains allow the water outside the protected zone to remain clearer and less turbid, minimizing the impact on marine life and habitats.

Settling of Sediments: The Silt curtains are designed with a weighted bottom chain or ballast that ensures the curtain remains vertical and in place. This configuration allows the sediment-laden water to flow through the curtain while slowing down the water velocity. As a result, the suspended particles have more time to settle to the bottom within the confined area, reducing the distance they can travel and their potential impact on surrounding ecosystems.

Silt Curtain Design: A silt curtain will be installed around the perimeter of the pier, extending below the water surface, to create a barrier and prevent sediments, debris, and suspended particles from entering the sea during construction activities.

Silt Curtain Maintenance: The silt curtain will be regularly inspected and maintained to ensure its effectiveness. Any damages or breaches will be promptly repaired to prevent the escape of sediments or debris.

Formwork/Shuttering: To ensure the integrity of timber shuttering and prevent leakage, foam sealants will be used to seal joints and gaps. This helps prevent the release of construction materials, such as cement, into the surrounding environment, including water bodies.

Timing: Repair work will be scheduled to coincide with the lowest tides to minimize disturbance to marine life and habitats. This reduces the risk of sediment disturbance and minimizes the potential impact on intertidal organisms.

Existing Gravel Berm: the existing gravel berm will be carefully removed during the pier repair works and recycled for use in other projects on the island, minimizing waste and promoting sustainable resource management. Again, this will be carried out at low tide.

Best Management Practices (BMPs)

Spill Prevention: Adequate spill prevention measures will be implemented during concrete pouring and handling operations to minimize the risk of spills and the potential release of debris into the marine environment.

Material Storage: All construction materials, including aggregates, cement, and reinforcing steel, will be stored in designated areas away from the pier edge to prevent accidental displacement or runoff into the sea.

Waste Management: Proper waste management practices will be followed, including the containment and disposal of construction-related waste materials, such as packaging materials, excess concrete, and other debris, in accordance with local regulations.

Monitoring and Reporting

Environmental Monitoring: Regular environmental monitoring will be carried out to assess the effectiveness of the dust and debris control measures.

Incident Reporting: Any incidents, spills, or breaches that may occur during construction activities, resulting in the release of dust, debris, or sediments into the marine environment, will be promptly reported to the appropriate authorities as per regulatory requirements.

Training and Awareness

Staff Training: All personnel involved in the construction project will receive appropriate training on dust and debris control measures, spill prevention, and environmental best practices to ensure their understanding and compliance with the mitigation measures.

Communication and Awareness: Summer Isles Enterprises Ltd will communicate and raise awareness among its workers regarding the importance of environmental protection and the specific measures in place to prevent dust and debris from entering the sea.

By implementing these mitigation measures, Summer Isles Enterprises Ltd aims to minimize the potential environmental impacts associated with dust and debris during the construction activities and maintain the integrity of the marine environment surrounding the pier.

Additional acoustic disturbances have been considered; however, the area is already a working environment with continuous boat movement and land-based work so although there will be a change to the baseline level, we do not anticipate these works as having a significant impact on the marine environment

5.3 Mobilisation of Plant and Materials

Based upon the findings in the site-specific risk assessment the following tasks may be undertaken prior to intrusive works commencing:

- Mobilise and install silt curtain which will encapsulate the pier.
- Erect temporary barrier around location.
- Ensure appropriate access routes are maintained for all staff within fenced area.

Hand & Power tools (Power drill for dowelling, joinery tools for shuttering, pointing tools etc.)	Silt Curtain
Towable compressor	3-ton dumper
Hand-Held Jack Hammer	Spill Kit
Portable concrete container unit	Foam Sealant
Framing nails for shuttering/Formwork	Handheld concrete mixer paddle

5.4 Works to be carried out

Construction of New Capping Slab

- **Formwork Construction:** Erect formwork to create the desired shape and dimensions of the new concrete slab. Ensure the formwork is securely fastened and properly aligned.
- **Reinforcement Placement:** Install steel reinforcement bars (rebar) within the formwork to provide structural strength and stability to the new slab. Follow the engineer's specifications and proper rebar placement techniques.
- **Concrete Mix Design:** Prepare a concrete mix design suitable for the project, considering factors such as strength requirements, environmental conditions, and durability.
- **Concrete Delivery:** Arrange for the timely delivery of concrete to the site area, ensuring it meets the required specifications.
- **Pouring and Compaction:** Pour the concrete into the formwork, ensuring proper compaction to eliminate voids and achieve adequate consolidation. Use appropriate vibration techniques and tools as necessary.
- **Finishing:** Apply appropriate finishing techniques to achieve a smooth and level surface on the new concrete slab.
- **Curing:** Implement a proper curing regime to promote concrete hydration and achieve the desired strength and durability. Apply curing compounds, coverings, or other methods as recommended by BS 8500
- **Protection:** Protect the newly poured concrete slab from adverse weather conditions, excessive drying, and potential damage during the initial curing period. Use appropriate coverings, barriers, or other protective measures.
- **Inspection and Testing:** Conduct regular inspections and quality checks during the construction process to ensure compliance with design specifications and industry standards. Perform necessary tests such as compressive strength tests, and reinforcement checks.

Repointing the Pier

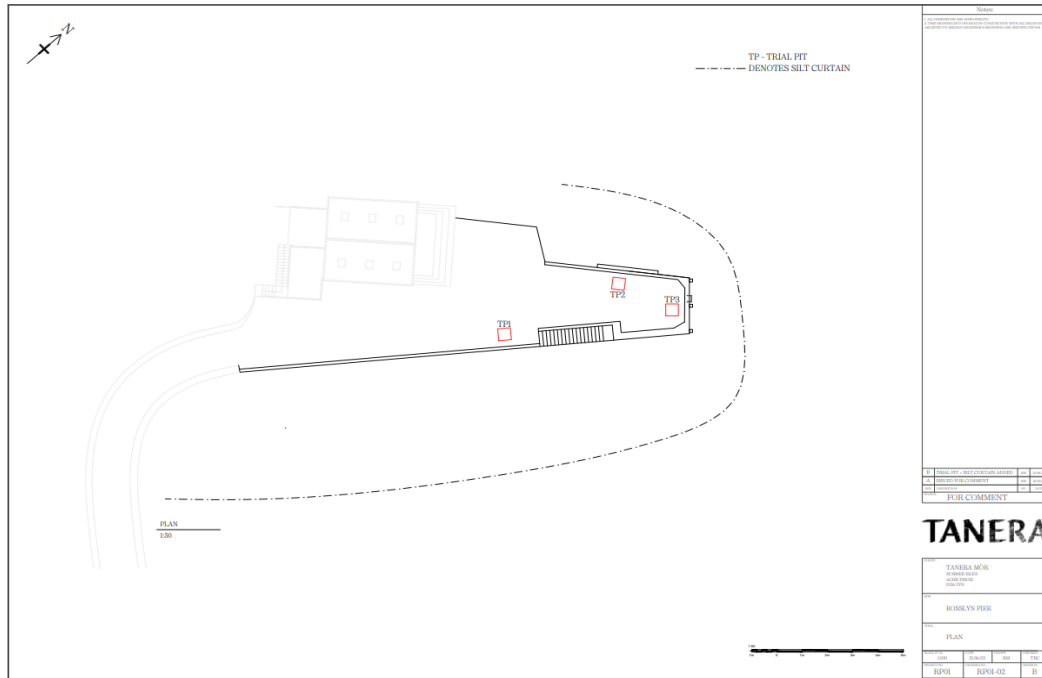
- Identify areas within the water column that require repointing, in line with the jurisdiction of MS-LOT.
- Remove marine growth as necessary to expose the existing pier surface.
- Remove loose material from the identified areas using appropriate tools and equipment.
- Prepare the rapid mix mortar (in accordance with BS8500) for repointing.
- Apply the rapid dry mortar mix to the joints, ensuring proper filling and finishing.
- Allow the mortar to cure and attain the required strength.

Construction of Concrete Berm

- Identify the SE face of the pier as the area requiring a concrete berm, within the water column according to MS-LOT regulations.
- Excavate the specified area to the required depth and dimensions for the concrete berm.
- Prepare the base by ensuring it is compacted and level.
- Erect shuttering to form the desired shape and dimensions of the concrete berm.

- Place support bag work where necessary for additional support and stability.
- Pour concrete into the shuttering, ensuring proper consolidation and compaction.
- Allow the concrete to cure as per the manufacturer's recommendations.

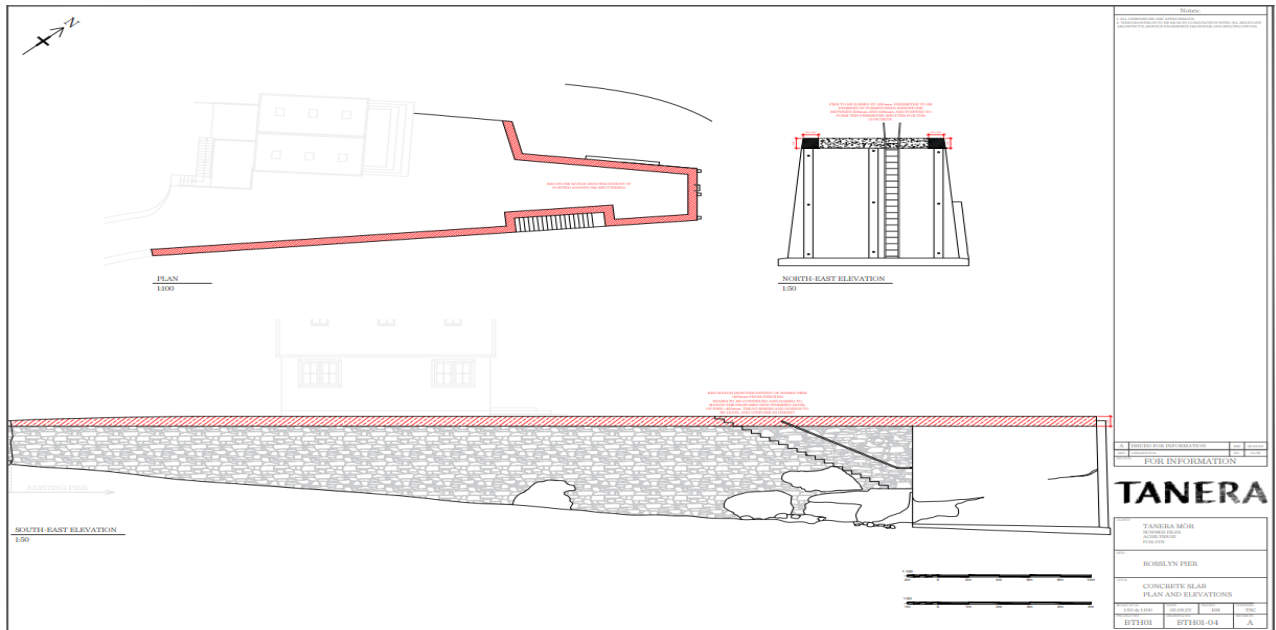
5.5 Silt Curtain location Drawing



5.6 Silt Curtain Photos



5.7 Concrete Slab Plan and Elevations



5.8 Area and Volumes, quantities in grey relate to works above MHWS.

Type of Deposit/Removal	Deposits		Removals	
	Quantity	Dimensions	Quantity	Dimensions
Steel/Iron	For dowelling - Quantity of steel bar to be determined on site - no more than 20m total length	750mmx500x20mm		
Steel / Iron (above MHWS)	Steel reinforcement mesh for concrete slab x 18	2.4m x 4.8m (Standard Size)		
Timber Berm / infill	8 sheets of Marine Ply	1.2m x 2.4m		
Cap (above MHWS)	12x6m lengths of softwood timber	95mmx45m m		
Plastic/Synthetic- resins?	TBD-In accordance with BS8500			
Gravel Existing gravel berm	N/A	N/A	200tonne	50mm (approx.)
Sandstone Cope/Shutter (Above MHWS)	34 m ²	Varies		
Concrete Slab/Cap (Above MHWS)	204 m ²	N/A		
Concrete underpinning	18 m ²	1m x 0.5m x 0.75m		

Note: Total concrete required is for approximately 120(m3) and will be RC32/40, exposure class XS2 concrete mix in accordance with BS 8500

5.9 Site Cleanup and Restoration

Removal of Construction Debris: Clean up the construction site and remove all construction-related debris, waste materials, and unused equipment