

## SUMMARY OF IMPLEMENTATION STATE OF THE MITIGATION MEASURES

Environmental Protection Measures / Mitigation Measures	Implementation Stages*			Remark
	Yes	No	N/A	
<b>Measures to be implemented during dredging:</b>				
• Use of a closed grab dredger with a maximum daily production rate of 500 m <sup>3</sup> /day;	√			
• Deployment of silt curtain to enclose the grab while dredging works are in progress. The silt curtain shall be frame type and designed to enclose local pollution caused by the grab dredging.	√			
• The second layer of silt curtain shall be formed from tough, abrasion-resistant permeable membranes, supported on floated booms in such a way as to ensure that egress of turbid waters from the enclosed dredging area shall be restricted.	√			
• Use of small sized hopper barge and dredger for dredging works. The maximum draft of the dredger and hopper barge, when fully loaded, shall not exceed 2m. The hopper barge shall make more frequent trips to transport the dredged material to the allocated marine disposal ground, instead of remaining at Lung Kwu Chau until it is fully loaded, in order to avoid grounding of the barge during low tide.	√			
• Mechanical grabs shall be designed and maintained to avoid spillage and sealed tightly while being lifted.	√			
• All pipe leakages shall be repaired promptly and plant shall not be operated with leaking pipes.	√			
• The decks of all vessels shall be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.	√			
• Adequate freeboard (i.e. minimum of 200mm) shall be maintained on barges to ensure that decks are not washed by wave action.	√			
• All hopper barges and dredgers shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material.	√			
• Construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds.	√			
• Loading of barges and hopper barges shall be controlled to prevent splashing of material into the surrounding water. Barges or hopper barges shall not be filled to a level that will cause the overflow of materials or sediment laden water during loading or transportation.	√			



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<b>Measure to be implemented during Demolition and removal works</b>				
<ul style="list-style-type: none"> <li>Demolition and removal works of the submerged portion of the existing jetty shall be carried out around low tide to minimize the duration of works taking place within the marine waters.</li> </ul>	√			
<b>Mitigation for terrestrial ecology</b>				
<ul style="list-style-type: none"> <li>Check the work site boundaries regularly to ensure that no damage occurs to surrounding natural habitats.</li> <li>Prohibit and prevent open fires within the work site boundary during construction and provide temporary fire fighting equipment in the work areas.</li> <li>Reinstate temporary work sites/disturbed areas immediately after completion of the construction.</li> </ul>	√	√	√	
<b>General mitigation for Chinese White Dolphin</b>				
<ul style="list-style-type: none"> <li>The use of high-speed vessels in the construction or operation of the jetty shall be avoided where possible. If high-speed vessels must be used, they shall be required to slow to under 10 knots which is the speed restriction for all marine traffic inside the Marine Park Boundary. Furthermore, marine traffic entering the Marine Park to the proposed jetty area shall follow a regular and predictable route.</li> <li>All vessel operators working on the project shall be given a briefing, alerting them to the conservation significance of the Marine Park and the presence of dolphins in the area, and setting out guidelines for safe vessel operations around cetaceans.</li> <li>A policy of no dumping of rubbish, food, oil, or chemicals shall be strictly enforced. This shall also be covered in the contractor briefing.</li> <li>Before dredging, an exclusion zone of 500m radius shall be scanned around work area for at least 30 minutes prior to the start of dredging. If dolphins are observed in the exclusion zone, marine works shall be delayed until they have left the area. Furthermore, if dolphins enter the exclusion zone after dredging has commenced, marine works shall cease until they have left the area.</li> <li>Staff shall monitor for the presence of dolphins within the exclusion zone by scanning the sea both with and without binoculars whilst positioned at vantage point near the summit of the hill behind the jetty location. The vantage point shall enable an extensive view of the 500m exclusion zone in all directions around the jetty. Staff shall communicate with the Engineer via a dedicated telecommunications device (e.g. mobile phone or 'walkie-talkie').</li> </ul>	√	√	√	

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<b>Mitigation for minimising possible noise impacts on dolphins</b>				
<ul style="list-style-type: none"> <li>• Other measures recommended to mitigate noise impact on dolphins by allowing their acclimatization to noise disturbance are to, as far as practicable:               <ul style="list-style-type: none"> <li>- The number of work vessels and small craft shall be minimised during the construction phase.</li> <li>- Dredging and jetty construction activities shall be continuous without short breaks or unpredictable noise outbursts at random intervals.</li> <li>- Events shall be scheduled on a regular basis with similar activities planned for similar time period each day.</li> <li>- Furthermore, the Contractor shall use quiet or 'silenced' plant equipment. All site plant equipment shall be well maintained.</li> </ul> </li> <li>• Removal of the existing jetty structure shall be done in a way that minimise noise impact on dolphins by following the above recommended measures. Blasting shall not be permitted. Silenced breakers shall be used and demolition and removal works of the submerged portion of the jetty shall be carried out around low tide to minimise transmittance of noise into the water. In addition, demolition of the jetty structure shall be planned so that, as far as practicable, the structure is 'cut' into large manageable sections to minimise the amount of time breakers are used.</li> <li>• During the operational phase, vessels moored at the jetty for extended periods shall, as far as practicable, turn off their engines to minimise unnecessary underwater noise.</li> </ul>	√			
<b>Marine Sediment</b>				
<ul style="list-style-type: none"> <li>• The material must be dredged, transported and disposed of in a manner which minimizes the loss of contaminants either into solution or by resuspension. During transportation and disposal of the dredged marine sediments, the following measures shall be taken to minimise potential impacts on water quality.</li> <li>• Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.</li> <li>• Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the Director of Environmental Protection.</li> </ul>	√			

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<b>Good Site Practices and Waste Reduction Measures</b>				
<b>Good site practices during the construction activities include:</b>				
• Nomination of an approved personnel, such as a site agent, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	√			
• Training of site personnel in proper waste management procedures.	√			
• High standards of waste management shall be observed on the works vessels and barges to ensure that no waste arisings or fuel/diesel oils are disposed to the surrounding marine waters.	√			
• No C&D materials and machinery fuels enter the marine waters at the site;	√			
• No stockpiles of construction material shall be permitted on Lung Kwu Chau Island.	√			
• All wastes, unused construction materials and construction equipment shall be removed from Lung Kwu Chau Island after the works are completed.	√			
• A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	√			
• In order to monitor the disposal of C&D materials at public filling areas, and to control fly-tipping, a trip-ticket system shall be included as one of the contractual requirements.	√			
<b>Waste reduction</b>				
Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:				
• Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill.	√			
• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	√			
• Plan use of construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	√			