

# 11 IMPLEMENTATION SCHEDULE

**Table 11-1 Implementation Schedule of Air Quality Mitigation Measures**

EIA Ref.	EM&A Ref.	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirement or standards for the measure to achieve?
<b>Construction Phase</b>							
3.9.1	2.34	<p>Adopting the following good site practices and follow the dust control requirements of the Air Pollution Control (Construction Dust) Regulation:</p> <ul style="list-style-type: none"> <li>▪ Stockpiles of imported material kept on site shall be contained within hoarding, dampened and/or covered during dry and windy weather;</li> <li>▪ Material stockpiled alongside trenches should be covered with tarpaulins;</li> <li>▪ Stockpile of cement should be covered entirely by impermeable sheeting;</li> <li>▪ All dusty materials shall be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet;</li> <li>▪ Water sprays shall be used during the delivery and handling of sands aggregates and the like;</li> <li>▪ All demolished items that may dislodge dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition.</li> </ul>	Dust Control	Contractor	All Construction Site	Construction Stage (Apr 05 to Nov 07)	TMEIAP, APCO, Air Pollution Control (Construction Dust) Regulation
3.11.1	Section 2	1 hour and 24 hour dust monitoring and site audit	Monitoring and Audit	Contractor and ET team	Designated air monitoring locations	Construction Stage (Apr 05 to Nov 07)	EM&A Manual

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<b>Operational Phase</b>							
3.11.2	2.35	All the major odour sources such as inlet works, grit chamber, equalization tank, SBR, sludge thickener, sludge digester, screening and grits storage area, return liquor pumping station and drying bed would be enclosed by air-tight covers. Odourous gas would be ventilated to the deodourisation facility for further treatment before discharge. The deodourisation facility would be capable of removing 99.5% of odour.  During sludge transportation, it is recommended that the sludge should be carried by enclosed container to avoid unacceptable odour nuisance.	Odour Control	PCSTW* operator	Peng Chau STW	Operational Stage	Annex 4 of TMEIAP

Note: PCSTW – Peng Chau Sewage Treatment Works

**Table 11-2 Implementation Schedule of Noise Mitigation Measures**

EIA Ref.	EM&A Ref.	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirement or standards for the measure to achieve?
<b>Construction Phase</b>							
4.6.10, 4.7.1 & 4.7.2	3.17	Use of quiet PME for the construction activities. In addition to use quiet PME, good site practices are recommended, as follows: <ul style="list-style-type: none"> <li>▪ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>▪ Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>▪ Machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.</li> <li>▪ Plant known to emit noise strongly in one direction, should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.</li> <li>▪ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening from on-site construction activities.</li> </ul>	Noise Control	Contractor	All Construction Site	Construction Stage (Apr 05 to Nov 07)	TMEIAP, NCO
4.9.1	Sec. 3	Noise Monitoring	Monitoring and Audit	Contractor and ET team	Designated noise monitoring locations	Construction Stage (Apr 05 to Nov 07)	EM&A Manual
<b>Operational Phase</b>							
4.6.15 & 4.7.2	3.18	All the noisy pumps, blowers and ventilation fans are to be enclosed in building structures.	Noise Control	PCSTW operator	Peng Chau STW	Operational Stage	Annex 5 of TMEIAP; NCO; Good Practices on Ventilation Systems Noise Control; Good Practices on Pumping Systems Noise Control

**Table 11-3 Implementation Schedule of Water Quality Mitigation Measures**

EIA Ref.	EM&A Ref.	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirement or standards for the measure to achieve?
<b>Construction Phase</b>							
5.8.1-5.8.3	4.37	<p>Practices outlined in ProPECC PN 1/94 Construction Site Drainage are recommended, as highlighted below:</p> <ul style="list-style-type: none"> <li>▪ Perimeter channels are to be installed in the works area to intercept runoff at site boundary prior to the commencement of any earthwork. Intercepting channels are to be provided to prevent storm runoff from washing across exposed soil surface.</li> <li>▪ Drainage channels are also required to convey site runoff to sand/silt traps and oil interceptors.</li> <li>▪ Regular cleaning and maintenance are to be provided to ensure the normal operation of these facilities throughout the construction period.</li> <li>▪ The construction programme should be properly planned to minimize soil excavation in rainy seasons to prevent soil erosion from the exposed soil surfaces.</li> <li>▪ Exposed stockpiles should be covered with tarpaulin or impervious sheets at all time.</li> <li>▪ Good site practices should be adopted to clean the rubbish and litter on the construction sites so as to prevent the rubbish and litter from dropping into the nearby marine environment. Cleaning the construction site on a regular basis is recommended.</li> </ul>	Water Quality Control	Contractor	All Construction Site	Construction Stage (Apr 05 to Nov 07)	WPCO; TM -Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water
5.8.4	4.40	Domestic sewage generated by workforce would be collected and discharge to the STW for proper treatment.	Water Quality Control	Contractor	All Construction Site	Construction Stage (Apr 05 to Nov 07)	EM&A Manual
5.8.5	4.37	<ul style="list-style-type: none"> <li>▪ Dredging should be undertaken using closed grab dredgers with a total production rate of 55 m<sup>3</sup>/hr;</li> <li>▪ Deployment of silt curtains with a minimum solids reduction efficiency of 75% or higher from the dredging area while dredging works are in progress;</li> <li>▪ All vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is</li> </ul>	Water Quality Control	Contractor	Marine Dredging Area	Construction of outfalls (May 06 to Jan 07)	EM&A Manual

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		<p>not generated by turbulence from vessel movement or propeller wash;</p> <ul style="list-style-type: none"> <li>▪ All pipe leakage should be repaired promptly and plant shall not be operated with leakage pipes;</li> <li>▪ Excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;</li> <li>▪ Adequate freeboard should be maintained on barges to ensure that decks are not washed by wave action;</li> <li>▪ All barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>▪ Loading of barges and hoppers should be controlled to prevent splashing of dredging material to the surrounding water, and barges and hoppers should not be filled to a level which would cause the overflow of materials or sediment laden water during loading or transportation; and</li> <li>▪ The decks of all vessels should be tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.</li> </ul>					
		Impact Water Quality Monitoring	Water Quality Control	Contractor	Designated Water Quality Monitoring Stations	Construction of outfalls (May 06 to Jan 07)	EM&A Manual
<b>Operational Phase</b>							
5.8.6 to 5.8.10	4.41	<p>The following mitigation measures and contingency measures are to be incorporated to minimize the potential impact from emergency discharge:</p> <ul style="list-style-type: none"> <li>▪ Provision of equalization tank to for storage of influent/effluent;</li> <li>▪ By-pass the sewage from the upstream pumping station to the submarine outfall for better dispersion in case of no electricity.</li> </ul>	Water Quality Control	PCSTW operator	PCSTW	Operational Stage	WPCO; TM -Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water

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5.11.1	4.36	Post Commissioning Water quality monitoring	Water Quality Control	Contractor	Designated Water Quality Monitoring Stations	Once every quarter for one year after the STW Upgrade commissioning	EM&A Manual
5.11.1	4.36	Post Commissioning Water quality monitoring <ul style="list-style-type: none"> <li>▪ Initial dilution measurement;</li> <li>▪ Effluent characterisation;</li> <li>▪ Plume tracking survey</li> </ul>	Verify the model assumptions	DSD	To be determined jointly by DSD and EPD.	After the commissioning of the sewage outfall. Details to be determined jointly by DSD and EPD	To be determined jointly by DSD and EPD.

**Table 11-4 Implementation Schedule of Solid Waste Mitigation Measures**

EIA Ref.	EM&A Ref.	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirement or standards for the measure to achieve?
<b>Construction Phase</b>							
7.5.1 to 7.5.3	5.4	<p>Waste Management Plan to be provided and implemented.</p> <p>Good site practice to minimise solid waste generation, including:</p> <ul style="list-style-type: none"> <li>▪ Nominating an approved personnel, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;</li> <li>▪ Training of site personnel in proper waste management and chemical handling procedures;</li> <li>▪ Provision of sufficient trash bins and regular collection for disposal;</li> <li>▪ Implementing of appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>▪ Separating chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility;</li> <li>▪ Adopting regular cleaning and Maintenance programme for the drainage systems, silt traps, sumps and oil interceptors;</li> <li>▪ Bookkeeping of the amount of wastes generated, recycled and disposed (including the disposal sites);</li> <li>▪ Re-using of excavated material and C&amp;D materials on-site as far as practicable to reduce off-site disposal;</li> <li>▪ Using of non-timber formwork to reduce the amount of C&amp;D materials;</li> <li>▪ Recycling of any unused chemicals or those with remaining functional capacity;</li> </ul>	Waste minimisation and control – Waste Management Plan	Contractor	All Construction Site	Construction Stage (Apr 05 to Nov 07)	WDO; Public Health and Municipal Services Ordinance The Land (Miscellaneous Provisions) ETWB TCW NO. 15/2003

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		<ul style="list-style-type: none"> <li>▪ Storing and sorting of different types of waste in different containers, skips stockpiles to facilitate reuse or recycling of waste materials and their proper disposal; and</li> <li>▪ Minimising the potential for damage or contamination of construction materials by proper storage and site practice.</li> </ul>					
7.5.5	5.6	<p>General Site Wastes</p> <ul style="list-style-type: none"> <li>▪ A collection area should be provided where waste can be stored and loaded prior to removal from site.</li> <li>▪ An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. If an open area is unavoidable for the storage or loading/unloading of wastes, then the area should be bunded and all the polluted surface run-off collected within this area should be diverted into wastewater treatment system.</li> </ul>	Waste minimisation and control	Contractor	All Construction Site	Construction Stage (Apr 05 to Nov 07)	WDO (Cap 354); Public Health and Municipal Services Ordinance The Land (Miscellaneous Provisions) ETWB TCW NO. 15/2003
7.5.6	5.7 & 5.8	<p>Maintenance and Chemical Waste</p> <ul style="list-style-type: none"> <li>▪ After use, chemical wastes (e.g. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Registration as a chemical waste producer s required if chemical waste would be produced.</li> <li>▪ Spent chemicals should be stored and collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Chemical Waste (General) Regulation.</li> </ul>	Maintenance and Chemical Waste Minimization and Control	Contractor	All Construction Site	Construction Stage (Apr 05 to Nov 07)	Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354) WDO (Cap 354)



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7.5.7	5.9 & 5.10	<p>C &amp; D Material</p> <ul style="list-style-type: none"> <li>▪ Stockpiles of C&amp;D material should be covered to minimise run-off during heavy rainstorms and should be located to minimise visual impacts and nuisance related to noise and dust.</li> <li>▪ Appropriate haul routes should be designated.</li> <li>▪ Elevated levels of suspended solids in surface water should be prevented through appropriate bunding, interceptors, and direction of run-off into settling ponds.</li> <li>▪ C&amp;D material should be separated on-site into three categories:                             <ul style="list-style-type: none"> <li>- Inert portion of the C&amp;D material (e.g. concrete and rubble), which should be re-used as much as possible or disposed of at designated public filling area. It is estimated that 7,000 m<sup>3</sup> inert C&amp;D material will be generated and 6,500 m<sup>3</sup> will be disposed of at public filling area, such as Penny Bay Reclamation, Central Reclamation or other CED designated public filling facilities.</li> <li>- Non-inert portion of the C&amp;D material (e.g. steel and other metals wood, glass and plastic), which is to be recycled as much as possible.</li> <li>- Waste that can not be re-used or recycled and should be disposed of at strategic landfills.</li> <li>- The C&amp;D waste would be transported to public filling site and landfill by barge.</li> </ul> </li> </ul>	Waste minimisation and control	Contractor	All Construction Site	Construction Stage (Apr 05 to Nov 07)	WDO; Public Health and Municipal Services Ordinance The Land (Miscellaneous Provisions) ETWB TCW NO. 15/2003
6.6 & 7.5.8	5.11	<p>Dredged Marine Mud</p> <p>The requirement and procedures for dredged and disposal of marine mud specified under the ETWB TCW No. 34/2002 are to be followed. (if needed)</p>	Waste minimisation and control	Contractor	Marine Dredged Area	May 06 to Jan 07	ETWB TCW No. 34/2002
5.8.5	4.37	Implement appropriate method for dredging as recommended in the water quality mitigation measures as specified in Table 11-3.					

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6.6.2	5.13	<p>The following measures are recommended during transportation and disposal of dredged marine mud.</p> <ul style="list-style-type: none"> <li>▪ Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks, exposed fitting of barges and hopper dredgers before the vessel is moved.</li> <li>▪ Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation.</li> </ul>					
<b>Operational Phase</b>							
7.5.10	5.14	<p>Sludge:</p> <p>Two arrangements have been adopted:</p> <ol style="list-style-type: none"> <li>(1) digested wet sludge would be barged away for centralised treatment and disposal in the initial stage of STW operation.</li> <li>(2) Sludge would be dewatered on site by drying bed to 30% solid content and for disposal of at designated landfill site in the later stage of STW operation when necessary.</li> </ol>	Waste Minimisation and Control	Operator of PCSTW	PCSTW	Operational Stage	WDO (Cap. 354); Water Pollution Control Ordinance (Cap 358) Annex 4 of TMEIAP

**Table 11-5 Implementation Schedule of Marine Ecological Mitigation Measures**

EIA Ref.	EM&A Ref.	Environmental Protection Measures	Objectives of the Recommended Measures and Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirement or standards for the measure to achieve?
<b>Construction Phase</b>							
8.6.2	6.2	Mitigation measures as recommended in Table 11-3 for dredging of marine mud (if needed) to be adopted. These include: <ul style="list-style-type: none"> <li>▪ Deployment of silt curtains of a minimum suspended solid reduction efficiency of 75% or higher</li> <li>▪ Reduce dredging rate</li> <li>▪ Use of closed grab dredger</li> </ul>	Waste minimisation and control	Contractor	Marine Dredged Area	May 06 to Jan 07	ETWB TCW No. 34/2002
<b>Operational Phase</b>							
		<ul style="list-style-type: none"> <li>▪ None recommended</li> </ul>					