

EIA* Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to Address	Location of the Measure	Who to Implement the Measure?	When to Implement the Measure?	What Requirements or Standards for the Measure to Achieve?
		Air Quality and Dust Mitigation Measures					
		GENERAL MEASURES					
		<i>During Construction Phase</i>					
		<i>Site clearance and demolition of existing structures</i>					
S5.8	S2.9	**The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation	To maintain the entire surface wet	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	**All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) 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	To minimise dust emissions	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
		<i>Site boundary and entrance</i>					
S5.8	S2.9	**Vehicle washing facilities including a high-pressure water jet should be provided at every discernible or designated vehicle exit point	To minimise dust emissions	Vehicle exit points	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	**The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores	To minimise dust being raised	Area where vehicle washing takes place and the section of the road between the washing facilities and the exit point	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	**Where a site boundary adjoins a road, street, service and or other area accessible to the public, hoarding of not less than 2.4m from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit	To minimise dust being raised	Site boundary	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
		<i>Access road</i>					
S5.8	S2.9	Every main haul road (i.e. any course inside a construction site having a vehicle passing rate of higher than 4 in any 30 minutes) should be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or	To maintain the entire road surface wet	Main haul road	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM

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		sprayed with water or a dust suppression chemical					
S5.8	S2.9	The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials	To minimise dust emissions	The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
		<i>Use of vehicle</i>					
S5.8	S2.9	Immediately before leaving a construction site, every vehicle should be washed	To remove any dusty materials from its body and wheels	Site exit points	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting	To ensure that the dusty materials do not leak from the vehicle	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
		<i>Concrete production</i>					
S5.8	S2.9	Concrete batching plant should be located away from any air sensitive receiver as far as practicable.	To minimise emission of cement particles.	Construction sites	Contractors	Construction stages	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	If the total silo capacity of the concrete batching plant exceed 50 tonnes, a Specified Process licence is required to obtain.	To ensure that any potential dust emission would be properly controlled.	Construction sites	Contractors	Construction stages	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	Cement delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line such that, in the event of the silo approaching an overflowing condition, an audible alarm is triggered and the material filling stops within one minute	To minimise emissions of cement particles	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	Silo used for the storage of cement should not be overfilled	To minimise emissions of cement particles	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	The loading, unloading, transfer, handling or storage of any cement should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system or equipment	To minimise emissions of cement particles	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM

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S5.8	S2.9	Cement collected by fabric filters or other pollution control system or equipment should be disposed of in a totally enclosed containers	To minimise emissions of cement particles	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
		<i>Excavation and earth moving</i>					
S5.8	S2.9	The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation	To maintain the entire surface wet	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies	To suppress dust emissions	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
		<i>Stockpiling of dusty materials</i>					
S5.8	S2.9	Any stockpile of dusty material should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical	To maintain the entire surface wet	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	<u>The requirements stipulated in the Works Bureau Technical Circular No. 6/2002 “Enhanced Specification for Site Cleanliness and Tidiness” should be followed</u>	To enhance cleanliness and tidiness	Construction sites	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
		SPECIFIC MEASURES					
		<i>During Construction Phase</i>					
S5.8	S2.9	**Dust suppression by twice daily watering with complete coverage of all active construction areas should be undertaken	To suppress dust generated	All construction sites and site boundary	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
S5.8	S2.9	**The construction vehicle travel speed on unpaved site areas should also be limited to not more than 10 km per hour	To reduce dust raised by construction vehicle	Unpaved areas	Contractors	Construction stage	APCO (Cap. 311); Air Pollution Control (Construction Dust) Regulation; EIAO-TM
		Noise Mitigation Measures					
		GENERAL MEASURES					
		<i>During Construction Phase</i>					
		<i>Use of Quiet Plant and Working Methods</i>					
S6.8	S3.6	The Contractor should obtain particular models of	To minimise noise emanated	Construction sites	Contractors	Construction	NCO (Cap. 400);

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		plant that are quieter than standard types given in the GW-TM.	from plants			stage	<i>EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM</i>
S6.8	S3.6	Quiet PME is defined as PME whose actual SWL is less than the value specified in the GW-TM for the same item of plant. Reference can be made to the British Standard BS5228: Part 1:1997 Control on Construction and Open Sites.	To minimise noise emanated from plants	Construction sites	Contractors	Construction stage	<i>NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM</i>
		<i>Using Temporary and Movable Noise Barriers</i>					
S6.8	S3.6	Movable barriers of 3 to 5m height with a small cantilevered upper portion and skid footing can be located within a few metres of stationary plant and within about 5m or more of mobile equipment such as an excavator and mobile crane etc., such that the line of sight to the NSR is blocked by the barriers.	To reduce noise impacts	Stationary plants on construction sites	Contractors	Construction stage	<i>NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM</i>
S6.8	S3.6	The Contractor to provide purpose-built noise barriers or screens constructed of appropriate material (minimum superficial density of 7 kg/m ²) located close to operating PME, in order to reduce the noise impact to the surrounding sensitive uses. Certain types of PME, such as generators and compressors, can be completely screened by portable barriers giving a total noise reduction of 10 dB(A) or more.	To reduce noise impacts	Construction sites	Contractors	Construction stage	<i>NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM</i>
		<i>Using Noise Screening Structures or Purpose-built Noise Barriers along the Site Boundary</i>					
S6.8	S3.6	Site buildings such as office and stores could be grouped together to form a substantial barrier separating site operations and nearby noise sensitive premises. This may be applicable for road alignment sites.	To reduce noise impacts	Site buildings	Contractors	Construction stage	<i>NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM</i>
S6.8	S3.6	Stacks of certain materials such as bricks, aggregate, timber or top soil can be strategically placed to form a barrier. This may be applicable for construction of road alignment.	To reduce noise impacts	Construction sites	Contractors	Construction stage	<i>NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM</i>
S6.8	S3.6	For adverse cases, purpose-built noise barriers or screens could be placed along the site boundary. This may be applicable for road alignment sites.	To reduce noise impacts	Site boundary	Contractors	Construction stage	<i>NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM</i>
		<i>Good Site Practice</i>					

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S6.8	S3.6	The contractor should site noisy equipment and activities as far from sensitive receivers as practical. Also, temporary site offices (and other similar structures) should be located, as far as is possible, such that sensitive receivers are screened by these structures from the line of sight of the construction areas.	To reduce noise impacts	Construction sites and temporary site offices	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
S6.8	S3.6	Intermittent noisy activities should be scheduled to minimize exposure of nearby NSRs to high levels of construction noise.	To reduce noise impacts	Construction sites	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
S6.8	S3.6	Idle equipment should be turned off or throttled down. Noisy equipment should be properly maintained and used no more often than is necessary.	To reduce noise impacts	Construction sites	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
S6.8	S3.6	Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided.	To reduce noise impacts	Construction sites	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
S6.8	S3.6	Where possible, the numbers of concurrently operating items of plant should be reduced through sensitive programming.	To reduce noise impacts	Construction sites	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
S6.8	S3.6	Construction plant should be properly maintained and operated. Construction equipment often has silencing measures built in or added on, e.g. compressor panels, and mufflers. Silencing measures should be properly maintained and utilized.	To reduce noise impacts	Construction sites	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
		<i>Proposed Construction Noise Mitigation Measures</i>					
S6.8	S3.6	The proposed mitigation measures for construction noise are arranged in an increasing level of efforts. Since the actual activities in the construction sites may vary at local site level, the level of mitigation measures adopted should also be determined with reference to the findings of the EM&A programme. The following mitigation levels are recommended. Mitigation Level 1 - Use of quiet plant and working methods.	To reduce noise impacts	Construction sites	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM

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		Mitigation Level 2 - Use of quiet plant and working methods, and - Use of noise screening structures or purpose-built noise barriers along the site boundary.					
S6.8	S3.6	The number of PME used on site should be reviewed from time to time	To avoid excessive or dummy PME located too close to NSRs	Construction sites	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
S6.8	S3.6	Good site practice should be followed through the construction phase	To reduce noise impacts	Construction sites	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
		SPECIFIC MEASURES					
S6.8	S3.6	**A construction site boundary wall or hoarding should be constructed appropriately **The boundary wall or hoarding should: - have a mass per unit of surface area in excess of 7 kg/m ² ; - have no gaps or openings at joints in the screen material; and - have a vertical height of 3m.	To act as an acoustic screen/noise barrier for active carriageway construction work in proximity to NSRs	Construction sites at Ngau Hom Shek (refer to Figure 6.7)	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
S6.8	S3.6	**Quiet plant/power mechanical equipment of sound power level lowered than those listed in <i>Table 3</i> of the <i>GW-TM</i> shall be used for all construction sites.	To minimise noise emanated from plants	Construction sites	Contractors	Construction stage	NCO (Cap. 400); EIAO (Cap. 499); EIAO-TM; PP-TM; GW-TM; DA-TM
		Operation Noise Mitigation Measures					
		SPECIFIC MEASURES					
S6.8	S3.6	Low noise surfacing for the alignment would be adequate to mitigate the noise impact into acceptable levels. It is a standard provision for the roads with vehicle speed limit greater than 70km/hr under the current policy. All low noise surfacing should be designed according to the design guidelines/practice notes issued by HyD Guidance Note No. RD/GN/011B Guidance Notes on Noise Reducing Road Surfacing.	To mitigate noise impact during operational phase	Along the SWC bridge	HyD / Contractors	Design and construction stage	EIAO-TM
		Water Pollution Mitigation Measures Under Construction					

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		GENERAL MEASURES					
		<i>Construction Site Runoff and Wastewater from General Construction Activities and Bored Piling Works</i>					
S7.8	S4.11	Good site practices should be adopted in order to handle and treat the excavated soils and fill materials on site	To minimise the generation of contaminated site runoff and wastewater from construction sites	Construction sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	Wastewater generated from washing of concrete lorry on site should be properly treated	To avoid water pollution	Construction sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	Practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted	To minimise the potential water quality impacts from construction site runoff and various construction activities.	Construction sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	Intercepting channels should be provided	To prevent storm runoff from washing across exposed soil surfaces causing water quality impacts	Construction sites / near exposed soil surfaces	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	Drainage channels are required to convey site runoff and sand/silt traps should be provided	To collect site runoff and remove soil particles	Construction sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	Regular cleaning and maintenance of the site drainage system	To ensure the normal operation of the facilities throughout the construction period	Construction sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	The construction programme should be properly planned to minimise soil excavation, if any, in rainy seasons.	To prevent soil erosion from exposed soil surfaces during rainstorms	Construction sites / areas with exposed soil surfaces	Contractors	Design and Construction	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs.	To minimise the generation of contaminated site runoff construction site	Construction sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	The exposed soil surfaces should be properly protected	To minimise dust emission which may result in	Construction sites / exposed soil surfaces	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM;

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			contamination of surface water				<i>ProPECC Note PNI/94</i>
S7.8	S4.11	Hydroseeding should be applied	To protect exposed slope surfaces	Construction sites / exposed slope surfaces within construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	The stockpiles of materials should be placed in the locations away from the shore and stream courses	To avoid releasing materials into nearby water bodies	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Final surfaces of earthworks should be compacted and protected by permanent work	To minimise the generation of contaminated site runoff from construction sites	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Haul roads should be paved with concrete and the temporary access roads should be protected using crushed stone or gravel, wherever practicable.	To minimise generation of site runoff from construction sites	Construction sites / haul roads / temporary access roads	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Wheel washing facilities should be provided at all site exits	To ensure that earth, mud and debris in the works areas would not be taken away by vehicles	All site exit points	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	All the runoff and wastewater generated from the works areas should be collected and diverted to a wastewater treatment system for removal of suspended solids and to adjust pH prior to final discharge; suitable coagulants and neutralising chemicals should be used	To minimise the water quality impacts from site runoff and wastewater	Construction sites	Contractors	Design and Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Treated effluent should be reused and recycled	To minimise water consumption and reduce the effluent discharge volume	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Road sections should be cleaned on a regular basis	To minimise water quality impacts	Construction sites / road sections	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
		<i>Sewage from Workforce</i>					
S7.8	S4.11	Wastewater generated from kitchens, if any, should be collected in a temporary storage tank	To minimise water quality impacts	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note</i>

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							<i>PNI/94</i>
S7.8	S4.11	A licensed waste collector should be deployed to clean the chemical toilets and temporary storage tank on a regular basis. The collected sewage and wastewater should then be transported to the sewage treatment plants for disposal.	To minimise water quality impacts	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
		<i>Accidental Spillage of Chemicals on site</i>					
S7.8	S4.11	An emergency plan should be developed by the contractor to deal with accidental spillage of chemicals on construction sites	To deal with accidental spillage of chemicals	Construction sites / road sections	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	The Contractor should register as a chemical waste producer if chemical wastes would be produced from the construction activities.	To control chemical wastes	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94; Waste Disposal Ordinance (Cap 354); Waste Disposal (Chemical Waste) (General) Regulation</i>
S7.8	S4.11	Areas for chemical storage should be securely locked and kept as far from the drainage systems or stream courses as possible.	To minimise water quality impacts	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94; Waste Disposal Ordinance (Cap 354); Waste Disposal (Chemical Waste) (General) Regulation</i>
S7.8	S4.11	The storage area should have an impermeable floor and bunding of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest, to minimise the impacts from any potential accidents.	To minimise water quality impacts	Construction sites	Contractors	Design and Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the	To control chemical wastes	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94; Waste Disposal Ordinance</i>

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		<p>requirements to deal with chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> - Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. - Chemical waster containers should be suitably labelled to notify and warn the personnel who are handling the wastes to avoid accidents. - Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 					<i>(Cap 354); Waste Disposal (Chemical Waste) (General) Regulation</i>
		SPECIFIC MEASURES					
		<i>Construction Site Runoff and Wastewater from Construction Activities and Bored Piling Work</i>					
S7.8	S4.11	During the installation of the SWC bridge sections, good site practices should be adopted to clean the rubbish and litter on the bridge sections	To prevent the rubbish and litter from dropping into the Deep Bay waters	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94</i>
S7.8	S4.11	A drainage system should be provided in the precasting yard and concrete batching plant at Lung Kwun Sheung Tan	To minimize the potential water quality impacts	Precasting yard and concrete batching plant at Lung Kwu Sheung Tan	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94</i>
S7.8	S4.11	The batching plant area should be channelled	To collect concrete washings and prevent concrete washings from directly entering the seawater	Precasting yard and concrete batching plant at Lung Kwu Sheung Tan	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94</i>
S7.8	S4.11	The concrete batching plant should be sheltered as far as possible	To minimize the generation of contaminated site runoff	Precasting yard and concrete batching plant at Lung Kwu Sheung Tan	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94</i>
S7.8	S4.11	The drainage system should be maintained on a regular basis	To remove deposits on the channels	Precasting yard and concrete batching plant at Lung Kwu Sheung Tan	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94</i>
S7.8	S4.11	Sedimentation and pH adjustment system should be provided and checked and maintained by competent persons	To ensure that the systems are functioning properly at all times	Precasting yard and concrete batching plant at Lung Kwu Sheung Tan	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note</i>

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		<p>**Recommendations on water quality impact mitigation measures outlined in <i>ProPECC PNI/94 – Construction Site Drainage</i> should be adopted.</p> <p>**The wastewater generated from bored pile foundation construction and related activities should be collected and recycled.</p> <p>**Recommended mitigation measures against release of muddy wastewater from bored piling sites located approximately 15m to the northwest of Deep Bay Road into Deep Bay mudflat are:</p> <ul style="list-style-type: none"> - a row of interlocking sheetpiles should be installed to essentially fence off the area from the nearby stream course (as shown in Figure 7.123A; and - a wastewater treatment system comprising of chemical coagulation, sedimentation and pH control processes should be installed on site to treat the wastewater generated from the bored piling works. <p>**The above proposed mitigation measures should be included in the contract and reflected in the tender drawings.</p> <p>**The Contractor should submit a construction site drainage layout and management plan to ER prior to the commence of the construction works</p> <p>**The treated effluent could be used for vehicle washing, dust suppression and general cleaning.</p> <p>**Adequate surface channels should be constructed along the site boundaries to avoid release of surface and storm runoffs out of the sites.</p> <p>**The channel system to collect the runoffs in the construction sites should be well designed prior to the commencement of the site formation works.</p> <p>**Provision of drains at the lowest points of the</p>	<p>To minimise impacts to Deep Bay waters and mudflat arising from foundation and road section construction</p>	<p>Construction sites at Ngau Hom Shek (see Figure 7.123A)</p>	<p>HyD/ Contractors</p>	<p>Tender and construction phase</p>	<p><i>PNI/94</i> <i>WPCO (Cap. 358);</i> <i>EIAO-TM;</i> <i>ProPECC Note</i> <i>PNI/94</i></p>

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		<p>sites could effectively collect the runoff.</p> <p>**Silt and sand traps, which remove large soil particles in the runoffs, should be provided in the channels.</p> <p>**Regular maintenance and cleaning of the channels would ensure that the channel system is in good conditions and is not obstructed by sediments.</p> <p>**Provision of oil/grit separator in the channel system is recommended to reduce the pollution levels of the potentially contaminated runoff.</p> <p>**Vehicle wheel washing facilities should be provided at all site exits to avoid the escape of soil and dirt from the construction sites.</p> <p>**The wastewater generated from the vehicle wheel washing facilities should be recycled wherever practicable.</p> <p>**Excess wastewater should be transferred to a suitable wastewater treatment system for removal of suspended solids.</p> <p>**It is recommended to pre-treat the wastewater generated from washing of concrete lorry mixers by discharging into a sedimentation pit, which provides a quiescent environment for the concrete particles to settle and consolidate. The upper layer water in the sedimentation pit with low concentrations of concrete particles should be further treated to the standards acceptable for final discharge. The concrete wastes deposited on the bottom of the pit should be removed regularly.</p> <p>**Covers should be provided to the newly constructed manholes to prevent any kinds of wastewater from entering into the drainage systems during the construction phase.</p> <p>**The pipes connected to the manholes need to be temporarily sealed to avoid debris and construction</p>					

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		materials get into the drainage systems. **The site runoffs and wastewater generated from various construction activities should be treated. The wastewater treatment system for treating wastewater generated from bored piling works would be able to handle these types of wastewater.					
		<i>Construction Site Runoff and wastewater from Bored Piling Sites at Ngau Hom Shek</i>					
S7.8	S4.11	**The package wastewater treatment system should be installed (on land)	To treat wastewater generated from the bored piling work to acceptable levels	Bored Piling Sites at Ngau Hom Shek	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	**A row of interlocking sheet piles should be installed	To fence off the area from the stream course.	Bored Piling Sites at Ngau Hom Shek	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	**Sandbag should be provided	To contain wastewater	Bored Piling Sites at Ngau Hom Shek	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	**Site drainage systems should be provided	To intercept wastewater leaking from the bored piling works and wastewater from site off	Bored Piling Sites at Ngau Hom Shek	Contractor	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
		<i>Construction Site Runoff and wastewater from Bored Piling Sites in the Shallow Water Region (1.8km from the shoreline)</i>					
S7.8	S4.11	Package wastewater treatment system should be provided (on the extended section of temporary access bridge)	To treat wastewater generated from the bored piling work to acceptable levels	Bored Piling Sites in the Shallow Water Region	Contractor	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	Wastewater inside the bored pile casing should be recycled and reused in the piling process	To minimise water consumption and reduce effluent discharge volume	Bored Piling Sites in the Shallow Water Region	Contractor	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	All the wastewater from the conditioning tank or the bored pile casing should be pumped to the	To remove suspended solids and pH adjustment	Bored Piling Sites in the Shallow Water Region	Contractor	Construction stage	WPCO (Cap. 358); EIAO-TM;

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		package wastewater treatment system					<i>ProPECC Note PNI/94</i>
S7.8	S4.11	Closed grab should be used	To avoid splashing of dredged material to the surrounding water	Bored Piling Sites in the Shallow Water Region	Contractor	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
		<i>Construction Site Runoff and wastewater from Bored Piling Sites in the Deep Water Region (Between 1.8km and 3.2km from the shoreline)</i>					
S7.8	S4.11	Package wastewater treatment system should be provided (on the barge)	To treat wastewater generated from the bored piling work to acceptable levels	Bored Piling Sites in the Deep Water Region	Contractor	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Wastewater inside the bored pile casing should be recycled and reused in the piling process	To minimise water consumption and reduce effluent discharge volume	Bored Piling Sites in the Deep Water Region	Contractor	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Excess wastewater should be transferred to the package wastewater treatment system for treatment	To remove suspended solids and pH adjustment	Bored Piling Sites in the Deep Water Region	Contractor	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Closed grab should be used	To avoid splashing of dredged material to the surrounding water	Bored Piling Sites in the Deep Water Region	Contractor	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
		<i>Sewage from Workforce</i>					
S7.8	S4.11	Chemical toilets should be provided in the works areas and some of the completed bridge sections at the later stage of the construction works	To collect sewage from workforce	Construction sites / completed bridge sections	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
S7.8	S4.11	Notices should be posted at conspicuous locations	To remind the workers not to discharge any sewage or wastewater into the Deep Bay waters	Construction sites	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>
		<i>Sediment Dredging</i>					
S7.8	S4.11	The maximum numbers of concurrent pier sites are up to 8 pairs only. For this worst-case scenario, there would be in total 16 discharge points or 16 pier sites under construction along the SWC alignment within the Hong Kong waters. 2 pairs of	To specify the maximum allowable concurrent pier sites under construction and to minimise the potential water quality impacts	Pier sites (see Figure 7.20)	Contractors	Construction stage	<i>WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94</i>

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		bridge piers would be within 500m from shoreline and 6 pairs of bridge piers would be in the region beyond the distance of 500m from the shoreline at Ngau Hom Shek	associated with the construction works				
S7.8	S4.11	Cofferdams should be installed at each pier site prior to any dredging works which allow sediment dredging to be carried out within the cofferdams and the seawater trapped within the cofferdam during the installation of cofferdam should be pumped out before any dredging to take place	To minimise the release of sediment into the water column	Pier sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94
S7.8	S4.11	Closed grabs or sealed grabs should be used for sediment dredging and the mechanical grabs need to be tightly sealed	To minimise the release of sediment into the water column	Pier sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94
S7.8	S4.11	The dredging operation should be carefully controlled	To avoid splashing sediment to the surrounding water	Pier sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94
S7.8	S4.11	The distance between the barge for sediment dredging and the cofferdam should be shortened as far as possible	To avoid sediment loss from the closed grab to the surrounding water	Pier sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94
S7.8	S4.11	The truck to carry the dredged material on the temporary access bridge should not be filled to a level that may cause the overflow of material during transportation	To avoid the overflow of material during transportation	Pier sites	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94
S7.8	S4.11	Transfer of dredged material from truck to barge should be carefully controlled	To prevent splashing of dredged material to the surrounding water	Pier sites	Contractor	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94
S7.8	S4.11	Carry out water quality monitoring during the construction phase of the Project	To ensure that the potential water quality impacts due to dredging are within acceptable levels	Deep Bay	ET	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94
S7.8	S4.11	Silt curtains should be installed at each pier site throughout the period with dredging activities and should be suitably designed by Contractor to ensure the effectiveness of the silt curtains especially for application in shallow water region.	To act a secondary control to reduce the spreading of sediment in the water	Pier sites (see Figure 7.32)	Contractors	Construction stage	WPCO (Cap. 358); EIAO-TM; ProPECC Note PNI/94

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S7.8	S4.11	<p>Sediment Dredging at Mai Po</p> <p>1. Access Route</p> <ul style="list-style-type: none"> install sheet piles at both end of the access route to isolate the dredging area as a dry area stockpiling of the dredged material should be avoided suspend the dredging work and cover the dredged material with tarpaulin or impervious sheets when a rainstorm occurs <p>2. Inlet Water Channel</p> <ul style="list-style-type: none"> use a floating pontoon equipped with closed grab to carry out the dredging work during flood tides install silt curtains or sheet piles to confine the dredging area so as to avoid spreading of sediment plume employ a licensed waste collector to collect and dispose the dredged material from inlet water channel and access route in compliance with the Dumping at Sea Ordinance 	To avoid spreading of sediment and minimise water pollution	Inlet water channel linked to Mai Po Gei Wai Nos. 16 and 17 and access route at Mai Po	HyD/ Contractor	Construction stage (to be completed before end of October 2003)	WPCO (Cap. 358); EIAO-TM; ProPECC Note PN1/94
S7.8	S4.11	Water Pollution Mitigation Measures Under Operation					
		SPECIFIC MEASURES					
		<i>Road Runoff from SWC Bridge</i>					
S7.8	S4.11	Carry out bridge runoff monitoring to confirm the effectiveness of the cleaning frequency to remove vehicle-generated pollutants from the bridge	To remove road sludge from the SWC bridge	SWC bridge	HyD	Operation stage	WPCO (Cap. 358); EIAO-TM
S7.8	S4.11	Best management practices should be implemented	To reduce the pollutants from the road section to the Deep Bay waters and mudflat	SWC bridge	HyD/	Operation stage	WPCO (Cap. 358); EIAO-TM
S7.8	S4.11	Standard HyD road gullies with silt traps to collect sediment should be provided on SWC bridge	To reduce road runoff	SWC bridge	HyD/	Design stage	WPCO (Cap. 358); EIAO-TM
S7.8	S4.11	HyD should undertake regular cleaning of road by vacuum air	To prevent build-up of the pollutant load on the road	SWC bridge	HyD/	Operational stage	WPCO (Cap. 358); EIAO-TM

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		sweeper / suction truck for removal of grits and pollutants twice a week. Each of the cleaning events should not be separated by more than four days. The removed pollutants should be tankered away for off site disposal at landfill sites.	surface and to prevent the pollutants from entering the Deep Bay waters and to Deep Bay mudflat				
S7.8	S4.11	An energy dissipator should be installed in the drainage down pipe at the bottom of the pier	To minimize the disturbance to mudflat	Pier sites	HyD	Operational stage	WPCO (Cap. 358); EIAO-TM
		<i>Accidental Spillage of Chemicals During Accidents</i>					
S7.8	S4.11	For general vehicle accidents not involving chemical spillage, emergency response actions should be undertaken by relevant government departments to control the spreading of oil spill on the road surface and release of spills into Deep Bay; and clean up the spill	To minimise the impacts to the aquatic environment and mudflat in Deep Bay	SWC bridge	HyD/ EPD/ Police	Operational stage	WPCO (Cap. 358); EIAO-TM
S7.8	S4.11	Minimise the impacts related to vehicle accidents involving chemical spillage through: <ul style="list-style-type: none"> • Implementation of the revised regulations of FSD to minimise the risk of accidental spillage of chemicals as a result vehicle accidents on SWC; • Development of a detailed Emergency Response Plan to enhance the established response actions in order to take due consideration of the need to protect the ecologically sensitive Deep Bay; • Implementation of the detailed Emergency Response Plan with the support from relevant government departments to deal with any spill incident; • Quick response to vehicle accident, which involves chemical spillage, on SWC; • Storage of clean up materials at HKPF's weigh-station near Ha Tsuen Interchange for use in controlling the spreading of spill; and • Assessment of the viability of incorporating the drainage interceptor in the bridge drainage system at the detailed design stage of the SWC project. 	To minimise impacts to Deep Bay	SWC bridge	HyD/FSD/ EPD/Police HyD	Operational stage Design stage	WPCO (Cap. 358); EIAO-TM
		Construction Waste Management Measures					
		GENERAL MEASURES					

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		<i>Measures to be Undertaken During Planning & Design Stages to Reduce the Generation of Waste</i>					
S8.7	S5.2	Requirements for standard design section of viaduct decks, piers and pile caps will be adopted to encourage the use of steel formwork, Waste Management Plan and proper sorting, re-use and recycling of C&DM shall be incorporated into the construction contracts.	To reduce the generation of C&DM	Construction sites	Contractors	Design stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02</i>
S8.7	S5.2	Areas for sorting and segregation of C&DM within the construction site shall be provided	To allow for sorting and segregation of C&DM	Construction sites	Contractors	Design stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A,</i>

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							No. 5/98, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02
		<i>Measures to be Undertaken During the Construction Stage to Reduce the Generation of Waste</i>					
S8.7	S5.1	A proper Waste Management Plan should be implemented for waste identification; waste minimization at source; waste reuse & recycle; waste segregation; and waste collection and disposal	To ensure the wastes are adequately managed	Construction sites	Contractors	Construction stage	EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02
S8.7	S5.1	All waste materials should be segregated into categories as follows: <ul style="list-style-type: none"> - Inert portion of construction & demolition material (C&DM) for reuse on-site - Surplus inert portion of C&DM to be used as public fill - Remaining C&D waste for landfill - Chemical waste - General refuse 	To ensure the wastes are adequately managed	Construction sites	Contractors	Construction stage	EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007); HKPSG; New Disposal

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							<i>Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02</i>
S8.7	S5.1	Training and instruction of construction staff should be given at the site. The training requirement should be included in the site Waste Management Plan.	To increase awareness and draw attention to waste management issues and the need to minimize waste generation	Construction sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02</i>
S8.7	S5.1	On-site measures should be implemented. These measures may include the provision of separate containers for inert (rubble, sand, stone, etc.) and non-inert (wood, organics, etc.) wastes. The inert waste should be re-used on site before being disposed of at public filling area, and the non-inert waste should be sorted for re-use or recycling before being transported to landfills.	To promote proper segregation and disposal of construction waste	Construction sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007);</i>

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							HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02
S8.7	S5.1	Where waste generation is unavoidable, the potential for recycling or reuse should be explored and opportunities taken. If wastes cannot be recycled, disposal routes described in the WMP should be followed.	To ensure the wastes are adequately managed	Construction sites	Contractors	Construction stage	EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02
S8.7	S5.1	Training shall be provided to workers on the concepts of the site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	To ensure the wastes are adequately managed	Construction sites	Contractors	Construction stage	EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction

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							<i>Framework Plan (1998-2007); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02</i>
S8.7	S5.1	Regular maintenance and cleaning of the waste storage areas shall be undertaken	To ensure the wastes are adequately managed	Construction sites / waste storage areas	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02</i>
		<i>Measures to be Undertaken During the Construction Stage to Manage the Handling and Disposal of Waste</i>					
		<u>General</u>					
S8.7	S5.3	A trip-ticket system on all solid waste transfer/disposal operations should be included as	To ensure the wastes are adequately managed	Construction sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous</i>

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		<p>one of the contractual requirements. The Independent Environmental Checker (IEC) should be responsible for auditing this system.</p>					<p><i>Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 5/99; No. 5/99A; No. 25/99, No. 25/99A, No. 25/99C, No. 29/00</i></p>
S8.7	S5.3	<p>A record system documenting the amount of wastes generated, recycled and disposed; as well as disposal methods and sites should be implemented and audited by the IEC.</p>	<p>To ensure the wastes are adequately managed</p>	<p>Construction sites</p>	<p>Contractors</p>	<p>Construction stage</p>	<p><i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); PELB's Waste Reduction Framework Plan (1998-2007); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 4/98, No. 4/98A, No. 5/98, No. 5/99; No. 5/99A; No. 25/99, No. 25/99A, No. 25/99C, No. 29/00</i></p>

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		<u>Storage, Collection and Transport of Waste</u>					
S8.7	S5.3	Licensed waste haulers should be employed to collect and transport waste to the appropriate disposal points. The following measures to minimize adverse impacts should be implemented: - Handle and store waste in a manner which ensures that it is held securely without loss or leakage, thereby minimizing the potential for pollution; - Use waste haulers authorized or licensed to collect specific categories of waste; - Remove waste in a timely manner; - Maintain and clean waste storage areas regularly; - Minimize windblown litter and dust during transportation by either covering trucks or transporting waste in enclosed containers; - Obtain the necessary waste disposal permits from the appropriate authorities, if they are required; - Dispose of waste at licensed waste disposal facilities; - Develop procedures such as a ticketing system to facilitate tracking of loads, particularly for chemical waste, and to ensure that illegal disposal of waste does not occur; and - Maintain records of the quantities of waste generated, recycled and disposed.	To ensure the wastes are adequately managed	Construction sites / waste storage areas	Contractors	Construction stage	<i>EIAO-TM; WDO, Waste Disposal (Chemical Waste) (General) Regulation (Cap 354); Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular No. 29/00</i>
		<u>Storage of Excavated Materials</u>					
S8.7	S5.3	Dust control measures for excavated materials temporarily stockpiled on-site are: - Surface of stockpiled soil should be wetted with water when necessary especially during dry season. - Stockpiled soil should be properly covered with tarpaulins. - Disturbance of stockpiled soil should be minimized. - Stockpiling areas should be enclosed if possible.	To prevent the generation of dust	Construction sites / dredged material stockpiling areas	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; Works Branch Technical Circular No. 3/00; No. 29/00</i>
S8.7	S5.3	Water quality control measures for excavated materials temporarily stockpiled on-site are: - An independent surface water drainage system equipped with silt traps should be installed at the	To prevent pollution of water	Construction sites / dredged material stockpiling areas	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public</i>

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		stockpiling area. - Stockpiled soil should be properly covered with tarpaulins during heavy rainstorms. -Stockpiles of excavated materials should be placed in the location away from the shoreline					<i>Health and Municipal Services Ordinance (Cap. 132); HKPSG; Works Branch Technical Circular No. 3/00; No. 29/00; ProPECC PN 1/94</i>
		<u>Handling and Disposal of Dredged Material</u>					
S8.7	S5.3	To transfer safely to barges for subsequent disposal	Avoid releasing of dredged sediment into the surrounding water	Pier sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; Works Branch Technical Circular No. 2/93; No. 3/00; No. 29/00; EPD-TC No. 1-1-92</i>
S8.7	S5.3	Close grabs should be used for sediment dredging	To avoid leakage of dredged sediment	Pier sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; Works Branch Technical Circular No. 2/93; No. 3/00; No. 29/00; EPD-TC No. 1-1-92</i>
S8.7	S5.3	The distance between the barge and the dredging point should be shortened as far as possible	To avoid dropping of sediment from the close grab to the seawater	Pier sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; Works Branch</i>

EIA* Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to Address	Location of the Measure	Who to Implement the Measure?	When to Implement the Measure?	What Requirements or Standards for the Measure to Achieve?
							<i>Technical Circular No. 2/93; No. 3/00; No. 29/00; EPD-TC No. 1-1-92</i>
S8.7	S5.3	Licensed vessels should be employed	To avoid leakage of dredged sediment	Pier sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; Works Branch Technical Circular No. 2/93; No. 3/00; No. 29/00; EPD-TC No. 1-1-92</i>
		<u>C&D Material</u>					
S8.7	S5.3	Careful design, planning and good site management can minimize over-ordering and generation of waste materials such as concrete, mortar and cement grouts. The design of formwork should maximize the use of standard wooden panels so that a high level of reuse can be achieved. Alternatives such as steel formwork or plastic facing should also be considered to increase the potential for reuse.	To minimize over-ordering and generation of waste materials, and to increase the potential for reuse	Construction sites	Contractors	Design and Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. 2/93, No. 2/93B, No. 16/96, No. 4/98, No. 4/98A, No. 5/98, No. 19/99, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02</i>
S8.7	S5.3	The contractor should recycle as much of the C&DM as possible on-site. Proper segregation of waste types on site will increase the	To increase the feasibility of certain components of the waste	Construction sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance</i>

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		feasibility of certain components of the waste stream by recycling companies. Different areas of the worksite should be designated for such segregation and storage wherever site conditions permit.	stream by recycling companies				(Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. No. 2/93, No. 2/93B, No. 16/96, No. 4/98, No. 4/98A, No. 5/98, No. 19/99, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02
S8.7	S5.3	Vehicles leaving the work site carrying C&D wastes or public fill should have their load covered. Vehicles should be routed as far from sensitive receivers in the area as possible.	To avoid dust or odour impacts	Construction sites	Contractors	Construction stage	EIAO-TM; WDO, Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. No. 2/93, No. 2/93B, No. 16/96, No. 4/98, No. 4/98A, No. 5/98, No. 19/99, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02; ProPECC PN 1/94
S8.7	S5.3	C&D wastes with more than 30% inert material (by weight) should not be disposed of at landfills	To handle waste properly	Construction sites	Contractors	Construction stage	EIAO-TM; WDO, Land (Miscellaneous

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							<i>Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Works Branch Technical Circular No. No. 2/93, No. 2/93B, No. 16/96, No. 4/98, No. 4/98A, No. 5/98, No.19/99, No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02; ProPECC PN 1/94</i>
		<u>Chemical Waste</u>					
S8.7	S5.3	For those processes that generate chemical waste, it may be possible to find alternatives which generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste.	To handle chemical waste properly	Construction sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Waste Disposal (Chemical Waste) (General) Regulation (Cap 354); Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular</i>

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							No. 5/98; No. 29/00; ProPECC PN 1/94
S8.7	S5.3	The producer of chemical wastes should be registered as a chemical waste producer in accordance with the CWR.	To handle chemical waste properly	Construction sites	Contractors	Construction stage	EIAO-TM; WDO, Waste Disposal (Chemical Waste) (General) Regulation (Cap 354); Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular No. 5/98; No. 29/00; ProPECC PN 1/94
S8.7	S5.3	Containers used for the storage of chemical waste should: - be suitable for the substances to be held, resistant to corrosion, maintained in good condition, and securely closed; - have a capacity of less than 450 litres unless the specifications have been approved by the EPD; and - display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the CWR.	For storage of chemical waste properly	Construction sites / chemical waste storage areas	Contractors	Construction stage	EIAO-TM; WDO, Waste Disposal (Chemical Waste) (General) Regulation (Cap 354); Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste;

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							<i>Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular No. 5/98; No. 29/00; ProPECC PN 1/94</i>
S8.7	S5.3	The storage area for chemical waste should: - be clearly labelled and used solely for the storage of chemical waste; - be enclosed on at least three sides; - have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; - have adequate ventilation; - be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and - be arranged so that incompatible materials are adequately separated.	For storage of chemical waste properly	Construction sites / chemical waste storage areas	Contractors	Construction stage	<i>EIAO-TM; WDO, Waste Disposal (Chemical Waste) (General) Regulation (Cap 354); Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular No. 5/98; No. 29/00; ProPECC PN 1/94</i>
S8.7	S5.3	Disposal of chemical waste should be: - via a licensed waste collector; - at a recycling, treatment or disposal facility that is licensed under the Waste Disposal Ordinance to receive chemical waste, such as the Chemical Waste Treatment Centre in Tsing Yi; or - by a recycling company approved by EPD.	To dispose of chemical waste properly	Construction sites	Contractors	Construction stage	<i>EIAO-TM; WDO, Waste Disposal (Chemical Waste) (General) Regulation (Cap 354); Land (Miscellaneous Provision) Ordinance (Cap. 28); Public</i>

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							<i>Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular No. 5/98; No. 29/00; ProPECC PN 1/94</i>
		<u>General Refuse</u>					
S8.7	S5.3	General refuse should be stored in enclosed bins or compaction units separate from C&DM and chemical wastes. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separate from C&DM and chemical wastes, and on a regular basis.	To minimize odour, pest and litter impacts	Construction sites	Contractors	Construction stage	<i>EIAO-TM; APCO (Cap. 311); WDO; Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular No. 5/98; No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02; ProPECC PN 1/94</i>
S8.7	S5.3	Reusable rather than disposable dishware should be used if feasible. Aluminium cans can often be	To reduce waste generation as far as possible	Construction sites	Contractors	Construction stage	<i>EIAO-TM; APCO (Cap. 311); WDO;</i>

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		recovered from the waste stream by recyclers if these are segregated or if access is provided. Labelled bins for the deposit of aluminium cans should be provided if feasible.					<i>Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular No. 5/98; No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02; ProPECC PN 1/94</i>
S8.7	S5.3	Office waste can be reduced through recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered if one is available.	To reduce waste generation as far as possible	Construction sites	Contractors	Construction stage	<i>EIAO-TM; APCO (Cap. 311); WDO; Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular No. 5/98; No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02;</i>

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S8.7	S5.3	Good management practices should be implemented	To ensure that refuse is properly stored and is transported for disposal of at licensed landfills.	Construction sites	Contractors	Construction stage	<i>ProPECC PN 1/94</i> <i>EIAO-TM; APCO (Cap. 311); WDO; Land (Miscellaneous Provision) Ordinance (Cap. 28); Public Health and Municipal Services Ordinance (Cap. 132); HKPSG; New Disposal Arrangements for Construction Waste; Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes; Works Branch Technical Circular No. 5/98; No. 25/99, No. 25/99A, No. 25/99C, No. 29/00, No. 12/02; ProPECC PN 1/94</i>
		Mitigation Measures on Ecological Impacts					
		GENERAL MEASURES					
		<i>During Construction Phase</i>					
S9.8	S6.2	<i>Inspection of the clearance of oyster beds within works area:</i>					

EIA* Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to Address	Location of the Measure	Who to Implement the Measure?	When to Implement the Measure?	What Requirements or Standards for the Measure to Achieve?
		The area within the 50m works area will be restored from oyster beds to mudflats to mitigate the temporary and permanent loss of intertidal habitat caused by the pier construction sites and the piers. Oyster beds would be removed before the commencement of construction works. This area should be inspected for the compliance of clearance.	To restore mudflat	Within the 50m works boundary at Ngau Hom Shek	HyD/ contractors	Construction stage	<i>EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap. 476); The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular 1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity</i>
		<i>Seagrass bed relocation</i>					
S9.8	S6.2	One month before the commencement of construction works, any seagrass beds within the 50m works area boundaries should be marked by visible markings and their total extent will be calculated. An area of exposed mudflat of the equal size will be identified in Pak Nai. Seagrass together with the sediment underneath will be divided into plugs of practical size, removed from Ngau Hom Shek and relocated to the identified area in Pak Nai. The surface of the plugs should be leveled with surrounding sediment at the relocation site. Relocated seagrass plugs should be monitored quarterly for survival and growth during construction phase.	To protect seagrass	Within the 50m works boundary at Ngau Hom Shek, see Figure 9.18 & Figure EM6.1.	HyD/ contractors	Construction stage	<i>EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap. 476); The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular</i>

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							1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity
		<i>Mangrove loss</i>					
S9.8	S6.2	The works area boundaries within the mangal at the shoreline at Ngau Hom Shek should be marked to ensure that work crews and equipment confine all construction activities to the designated works area. Markings should be readily visible, and should be replaced immediately if damaged. Number of mangrove seedlings to be planted and location of planting should be determined during the design and construction stage of the project. Replanting should be conducted within 4 months after the mudflat restoration (clearance of construction materials and wastes) is completed.	Prevent unnecessary mangrove loss, to facilitate re-planting plan.	Works boundary within the mangal at the shoreline at Ngau Hom Shek, see Figure 9.18 .	HyD/ contractors	Design and Construction stage	EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap. 476); The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular 1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity
		<i>Work disturbance on inter-tidal bird communities</i>					
S9.8	S6.2	Distribution of feeding shorebirds on inter-tidal mudflats near construction sites of the alignment will be studied. Distances of feeding birds on mudflat within 500 m of both sides of the construction site will be recorded. Birds feeding on exposed mudflats and tidelines will be recorded separately. Birds feeding on exposed mudflats and tidelines will be recorded separately. Survey will be carried out when more than 100 m mudflat is exposed, as in the EIA study. A graph showing the distribution pattern of feeding birds around the	To verify the prediction of impact assessment	Ngau Hom Shek and Sheung Pak Nai, see Figure EM6.1 .	HyD/ contractors	Construction stage	EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap. 476);

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		construction site will be plotted. A control site will be set up on mudflats at Sheung Pak Nai. Distribution pattern of feeding birds on both sides of a strip of mudflat of equal width as the construction sites will be studied in the same way as in the construction site. Distribution patterns of birds at the construction site and control site will be compared using statistical test. Bird abundance and species richness in the construction site and the control site will also be compared with the baseline data of these two locations collected during the field surveys for the EIA study (Table 3.10 & 3.11 in Appendix 9A of the EIA Report). Sampling frequency will be once per month throughout the construction phase.					<i>The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular 1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity</i>
S9.8	S6.2	<i>Mudflat restoration</i> The works area boundaries for the project within the mudflat should be marked to ensure that work crews and equipment confine all construction activities to the designated works area. Markings should be readily visible, and should be replaced immediately if damaged. Construction materials and wastes, or equipment must be cleared from the mudflats within two months after the construction period. The profile of the mudflat will be restored to its original conditions.	To prevent unnecessary damage to mudflats	Within the 50m works area	Contractors	Construction stage	<i>EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap. 476); The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular 1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity</i>
		<i>During Operation Phase</i>					
		<i>Operation disturbance on inter-tidal bird</i>					

EIA* Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to Address	Location of the Measure	Who to Implement the Measure?	When to Implement the Measure?	What Requirements or Standards for the Measure to Achieve?
		<i>communities</i>					
S9.8	S6.3	Distribution of feeding shorebirds on inter-tidal mudflats near the bridge will be studied. Distances of feeding birds on mudflat within 500 m of both sides of the bridge will be recorded. Birds feeding on exposed mudflats and tidelines will be recorded separately. Survey will be carried out when more than 100 m mudflat is exposed, as in the EIA study. A graph showing the distribution pattern of feeding birds around the bridge will be plotted. A control site will be set up on mudflats at Sheung Pak Nai. Distribution pattern of feeding birds on both sides of a strip of mudflat of equal width as the bridge will be studied in the same way as in the bridge. Distribution patterns of birds near the bridge and control site will be compared using statistical test. Bird abundance and species richness in the bridge and the control site will also be compared with the baseline data at these two locations collected during the field surveys for the EIA study (Table 3.10 & 3.11 in Appendix 9A of the EIA Report). The data from the control site will provide information on the bird density and composition in the outer Deep Bay area, while the data from the bridge can reflect the potential effect of bridge structure on birds. In order to study the effect of shade of the bridge on birds, bird abundance and species richness on inter-tidal mudflat right below the bridge will be sampled. Bird abundance and species richness under bridge will be compared with those on mudflat without bridge. Sampling frequency will be once per two months. The monitoring should be carried out for at least 2 years.	To verify the prediction of impact assessment	Ngau Hom Shek and Sheung Pak Nai, see Figure EM6.1 .	HyD	Operation phase	<i>EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap. 476); The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular 1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity</i>
		<i>Monitoring of bridge lighting and bird collisions</i>					
S9.8	S6.3	Specific types and arrangement of bridge lighting should be designed to minimise the probability of bird collisions during inclement weather (mist, fog, rain). The design and operation of this lighting scheme, together with its performance in terms of bird mortality, should be monitored during the first	To facilitate a suitable lighting arrangement	SWC bridge	HyD	Operation stage	<i>EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and</i>

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		<p>2 years of the operation of the bridge. The types of illumination used should be recorded for all weather conditions, and records of any bird fatalities should be documented by date, time, location, weather conditions, type of illumination, number of dead birds by species, and estimated cause of death. Sea surface will be scanned for any floating dead birds. Results of the monitoring study should be used to guide illumination of the bridge in future. Monitoring effort should be concentrated in autumn migration, winter, and spring migration seasons (particularly due to higher frequency of misty weather), because these are the times of year when most birds are moving through or residing in Deep Bay. Various combinations of illumination scheme, weather condition, season of year, and time of day should be monitored. The study should be quantitative and designed to enable robust statistical analyses. Monthly surveys are recommended. However, additional surveys will be carried out after days of inclement weather (e.g., misty days, very cold days).</p>					<p><i>Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap. 476); The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular 1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity</i></p>
		<p><i>Mangrove loss</i></p>					
S9.8	S6.3	<p>Number of mangrove seedlings planted and location of planting should be checked for compliance with the plan determined during the design and construction stage of the project. Compensatory mangrove planting should be monitored quarterly for survival and growth for 2 years.</p>	<p>To compensate the mangrove loss</p>	<p>Mangrove re-planting site beneath the SWC bridge</p>	<p>HyD</p>	<p>Operation stage</p>	<p><i>EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap. 476); The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular</i></p>

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							<i>1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity</i>
		Additional Enhancement Measures					
S9.9	N/A	Dredging of water inlet channels of Mai Po Gei Wais	For the long termed goodness of the Deep Bay Ecosystems	Mai Po, see Figure 7.31	HyD	Prior to construction works	N/A
		Dredge of the deposited sediment in the water channel, which connects to Mai Po Gei Wai 16/17. An access route would be provided to facilitate the dredging works and mobilization of dredging equipment. Dredging would also be carried out along the access route as shown in Figure 7.31 of the EIA report. The length of inlet water channel to be dredged is approximately 1.4 km. Elevated land areas on both sides of the inlet water channel are densely populated with mangroves. A portion of the channel of about 600m is on the mudflat and is not bounded by the high population of mangroves. The length of the access route is relatively shorter and is about 800m. The width of dredging along the inlet water channel and the access route is about 4m and the depth of sediment to be removed is about 1.0m. An estimate of the dredged material is approximately 8,800 m ³ . A certain number of mangrove plants would need to be removed for the dredging of inlet water channel and access route. There would be totally about 1997 mangrove trees to be affected during the dredging works, including <i>Kandelia candel</i> , <i>Aegiceras corniculatum</i> , and <i>Avicennia marina</i> .					
S9.9	N/A	Removal of exotic mangrove species and weeds	For the long-termed goodness of the Deep Bay ecosystem	Mudflat in inner Deep Bay	HyD	Prior to construction works	N/A
		A search of exotic mangrove species and weed on mudflat (such as <i>Sonneratia</i> spp. and <i>Spartina</i> sp.) will be conducted within inner Deep Bay prior to					

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		the commencement of the SWC construction works. Identified individuals or areas of exotic species and weed will be marked on a map of appropriate scale, and removed by contractors at the initial stage of the construction programme. Liaison with AFCD will be conducted for the exact locations and extents of the search covered.					
		SPECIFIC MEASURES					
N/A	N/A	**Recommended mitigation measures should be implemented as shown in Table 7.31 of DBL Final EIA Report. Proposed Mitigation for Ecological Impacts. These measures are specified for construction phase and operation phase.	Mitigation for ecological impacts	At all DBL Facilities	HyD	Construction and Operation stage	<i>EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap. 476); The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular 1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity</i>
N/A	N/A	**A compensatory wetland is proposed to compensate for the habitat loss as given in Table 7.32 for "Details of proposed DBL wetland compensation area" of DBL Final EIA Report. A habitat Creation and Management Plan should be prepared for the approval by AFCD.	Compensate for habitat loss	Ngau Hom Shek, see Figure 9.16A	Design & Construction by HyD and maintained by AFCD	Design, Construction and Operation stage	<i>EIAO (Cap. 499); EIAO-TM; Wild Animals Protection Ordinance (Cap. 170); Forests and Countryside Ordinance (Cap.96); Marine Parks Ordinance (Cap.</i>

EIA* Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to Address	Location of the Measure	Who to Implement the Measure?	When to Implement the Measure?	What Requirements or Standards for the Measure to Achieve?
							476); The Animals and Plants (Protection of Endangered Species) Ordinance (Cap. 187); PELB's Technical Circular 1/97; CITES; Ramsar Convention; Bonn Convention; Convention on Biological Diversity
		Mitigation Measures on Fisheries Impacts					
S10	N/A	Liaisons with oyster farmers on oyster raft relocations	Protect oyster rafts	Marine Works Area of SWC	LandD/HyD	Before commencement of construction	EIAO (Cap. 499
S11		Mitigation Measures on Hazard to Life					Dangerous Goods Ordinance (Cap. 295); Dangerous Goods (Application and Exemption) Regulations; EIAO (Cap.
		No mitigation measure would be required.					
		Mitigation Measures on Cultural Heritage Impacts					
		SPECIFIC MEASURES					
S12.5		A rescue excavation with the programme agreed by AMO should be carried out within the Ngau Hom	To avoid disruption of cultural heritage sites.	Ngau Hom Shek Beach Site (including the west of the site	HyD	before the commencement	EIAO (Cap. 499); EIAO-TM;

EIA* Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to Address	Location of the Measure	Who to Implement the Measure?	When to Implement the Measure?	What Requirements or Standards for the Measure to Achieve?
		Shek Archaeological Beach Site before commencement of any earthworks or building works.		if necessary) (see Figure 12.4)		of any earthworks or building works in Ngau Hom Shek Beach Site	<i>A&MO</i>
S12.5		Additional archaeological investigation should be carried out to the west of the Ngau Hom Shek Archaeological Beach Site. If archaeological features are identified in this area, rescue excavation with the programme agreed by AMO is required prior to the commencement of any earthworks or building works.	To confirm archaeological findings and to avoid disruption of cultural heritage sites, if any.	Ngau Hom Shek Beach Site (including the west of the site if necessary)	HyD	before the commencement of any earthworks or building works in in Ngau Hom Shek Beach Site	<i>EIAO (Cap. 499); EIAO-TM; A&MO</i>
		For the area subject to landscape works in the Ngau Hom Shek Beach Site (including the west of the site if necessary) should be filled up to a level that the adverse impact of the proposed tree roots to the existing ground can be avoided. The remaining part of the site will not be directly affected by the construction but it is recommended to cover the site area with a layer of soil (30cm minimum) to protect the site from potential indirect impact.	To avoid disruption of antiquities.	Ngau Hom Shek Beach Site (including the west of the site if necessary), see Figure 12.5A.	HyD	Construction phase	<i>EIAO (Cap. 499); EIAO-TM; A&MO</i>
S13		Mitigation Measures on Landscape and Visual Impacts					
		GENERAL MEASURES					
13.8	13.2	<i>During Construction Phase</i>					
		Conservation (excavation and stockpiling on site) of topsoil for re-use in landscape works. This includes the proper storage of topsoil to minimise erosion of stockpiles. (CM1)	Reduce the Landscape Impact on LR1,2,3,7 and LC1, LC3	Construction sites at Ngau Hom Shek (refer Figure 13.12)	HyD / Contractor	Construction Phase	<i>EIAO (CAP.499.S.16); EIAO- TM; HKPSG; ; WBTC No.14/02;</i>
		Control of night-time lighting (CM2)	Reduce the Visual Impact on LR3, LC1,2,3,4 and all VSRs	Construction Site at Ngau Hom Shek	HyD / Contractor	Construction Phase	<i>No. 25/93 and No. 17/00; GEO (1/2000); WBTC 7/2002; WBTC 19/98</i>
		Replanting of disturbed vegetation should be undertaken and this should use predominantly native plant species. (CM3)	Reduce the Landscape and Visual Impact	Construction Site at Ngau Hom Shek	HyD	Constuction Phase	

EIA* Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to Address	Location of the Measure	Who to Implement the Measure?	When to Implement the Measure?	What Requirements or Standards for the Measure to Achieve?
		Screen hoarding, using decorative graphic and chromatic devises should be erected around the works wherever possible to screen the works from motorists and other receivers within the road corridor and adjacent areas. (CM4)	Reduce the Visual Impact on LR3, LC3 and all VSRs	Construction Site at Ngau Hom Shek	HyD / Contractor	Construction Phase	
		Maintaining and protecting existing vegetation adjacent to Deep Bay Road for a minimum width of 10 metres on either side. (CM5)	Reduce the Visual Impact on LR3, LC1, LC3 and VSR 11	Along Deep Bay Road in Ngau Hom Shek	HyD / Contractor	Construction Phase	
		Planting within and at the perimeter of temporary work sites should be undertaken at the earliest possible stage before and during construction, and opportunities should be sought for undertaking any advance planting. (CM6)	Reduce the Landscape and Visual Impact on all resources, character zones and VSRs	Construction Site at Ngau Hom Shek	HyD	Construction Phase	
		Existing trees to be transplanted as per the Master Landscape Plan (CM7)	Reduce the Landscape and Visual Impact on all resources, character zones and VSRs	Construction Site at Ngau Hom Shek and along Deep Bay Road	HyD	Construction Phase	
13.9	13.2	<i>During Operational Phase</i>		Refer to Figure 13.13			
		Woodland tree and shrub planting should be implemented adjacent to the Deep Bay Road where it is at grade. This will include cut and filled slopes. (OM1)	Reduce the Landscape and Visual Impact on LR3, LC1, LC3 & VSR1	Along Deep Bay Road in Ngau Hom Shek (refer to Figure 13.13)	HyD	Operation Phase	<i>EIAO (CAP.499.S.16); EIAO- TM; HKPSG; ; WBTC No.14/02; No. 25/93 and No. 17/00; GEO (1/2000); WBTC 7/2002; WBTC 19/98</i>
		Implementation of bio-engineering techniques to the cut slopes. (OM2)	Reduce the Landscape Impact on LR1 and LC2	At cut slopes along the SWC alignment, along Deep Bay Road and at Construction sites at Ngau Hom Shek	HyD	Operation Phase	
		Non-invasive Climbing plants should be used to soften the appearance of viaduct columns at ground level. (OM3)	Reduce the Landscape and Visual Impact on LC1, LC2, LC3 and all VSRs	Along the alignment of SWC	HyD	Operation Phase	
		Woodland tree and shrub planting should be undertaken at cut slopes so as to compensate for vegetation lost during construction. Any affected slope areas should hydroseeded and planted with woodland species, avoid shotcreting. (OM4)	Reduce the Landscape Impact on LR1, LC1, LC2 and LC3 and all VSR	At cut slopes along the SWC alignment, along Deep Bay Road and at Construction sites at Ngau Hom Shek	HyD	Operation Phase	
		Native shrub planting should be undertaken to screen the proposed works and blend it into the landscape. (OM5)	Reduce the Landscape and Visual Impact on LC1, LC2, LC3 and all VSRs	Construction Sites and along the alignment of SWC	HyD	Operation Phase	

EIA* Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to Address	Location of the Measure	Who to Implement the Measure?	When to Implement the Measure?	What Requirements or Standards for the Measure to Achieve?
		Planting should be incorporated where possible to screen the road and bridge in low level views from adjacent areas, and to tone down the extent of hard paving and surfaces and reduce the amount of glare. (OM6)	Reduce the Landscape and Visual Impact on all resources, character zones and VSRs	Along the alignment of SWC	HyD	Operation Phase	
		Sensitive architectural design of engineering and other built structures, including form and finishes, this will include but not limited to: barriers, paved surfaces, retaining walls, walls, columns, buildings, and other structures, light standards, etc. The design of built structures shall be to the satisfaction of the ACABAS. (OM7)	Reduce the Landscape and Visual Impact on LC3 and all VSRs	Along the alignment of SWC	HyD	Design Phase	
		Lighting of road and bridge. Should be designed to minimise glare to all receivers. Poles and fittings should be designed to conform with the bridge design. (OM8)	Reduce the Visual Impact on all VSRs	Along the alignment of SWC	HyD	Design Phase	
		Transplanted Tree Stock (OM9)	Reduce the Landscape and Visual Impact on LR2,3 & All VSRs	Construction sites at Ngau Hom Shek and along Deep Bay Road	HyD	Construction Phase	

Note:

** Measures from the DBL EIA Report to be observed and implemented by SWC project when carried out works at the entrusted area at Ngau Hom Shek.

HyD HyD
AFCD Agricultural, Fisheries and Conservation Department
AMO Antiquities and Monuments Offices
FSD Fire Services Department
EPD Environmental Protection Department
Police Hong Kong Police Force