

## APPENDIX B IMPLEMENTATION SCHEDULE OF RECOMMENDED MITIGATION MEASURES

### Implementation Schedule of Recommended Mitigation Measures

This appendix presents the implementation schedule of mitigation measures for the Project. **Table 1** summarises the details of the recommended mitigation measures for all works areas. For each recommended mitigation measures, both the location and timing for the measure have clearly been identified as well as the parties responsible for implementing the measure and for maintenance (where applicable).

**Table 1 Implementation Schedule of Recommended Mitigation Measures**

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Measures & Main Concerns to Address	Who to Implement the Measure?	Location of the Measure	When to Implement the Measure? *			Standards/Requirements for the Measures to Achieve
						Des	C	O	
Air Quality Impact									
Construction Phase									
S3.6.1.5	S2.9.1	Watering once per every two hours on active works areas to reduce dust emission.	To reduce dust emission.	Contractor	Construction Sites		√		Air Pollution Control Ordinance (APCO); Air Pollution Control (Construction Dust) Regulation; Hong Kong Air Quality Objectives (HKAQOs); Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM); Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation; Development Bureau Technical Circular (Works) No. 13/2020 Timely Application of Temporary Electricity and Water Supply for Public Works Contract and Wider Use of Electric Vehicles in Public Works Contracts; Air Pollution Control (Fuel Restriction) Regulation
S3.8.1.1	S2.9.1	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices listed below shall be carried out to further minimize construction dust impact: <ul style="list-style-type: none"><li>Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.</li><li>Use of frequent watering for particularly dusty construction areas and areas close to ASRs.</li><li>Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.</li><li>Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.</li><li>Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li><li>Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.</li><li>Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.</li><li>Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.</li><li>Imposition of speed controls for vehicles on site haul roads.</li><li>Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.</li><li>Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.</li><li>Temporarily stockpile odorous material as far away from ASRs as possible.</li><li>Temporary stockpiles of odorous material will be properly covered with tarpaulin to avoid any odour nuisance arising.</li></ul>	To minimize construction dust / odour impact.	Contractor	Construction Sites		√		

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S3.2.4	S2.9.1	Only approved or exempted NRMMS with a proper label are allowed to be used in specified activities and locations including construction sites. The Contractor is required to ensure the adopted machines or non-road vehicle under the Project could meet the prescribed emission standards and requirement.	To minimize air quality impact	Contractor	Construction Sites		√		Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation
S3.2.5	S2.9.1	At the detailed design stage, project team should timely apply for the temporary electricity with a target that the necessary cables laying works could be completed before the commencement of the works contract. In addition, timely provision of electricity to construction sites can facilitate the use of Electric Vehicles (EVs) in public works contracts. The Project team should specify the use of EV(s) as well as the installation of designated medium-speed charger for each EV as a standard provision at the site accommodation in each public works contract.	To minimize air quality impact	Project Proponent	Construction Sites	√	√		DevB TC(W) No. 13/2020
S3.2.6	S2.9.1	Except for construction site or during emergency, only gaseous fuel is allowed to be used in the Sha Tin Fuel Restriction Area. For any fuel-using equipment that is used or operated in construction site or during emergency in Sha Tin Fuel Restriction Area, ULSD is practically the liquid fuel to be used.	To minimize air quality impact	Contractor	Construction Sites		√		Air Pollution Control (Fuel Restriction) Regulation
<b>Noise Impact</b>									
Construction Phase									
S4.8.1.3	S3.12	Use of quiet PME. Use of movable noise barriers for excavator, mobile crane, loader, backhoe, dump truck, dump truck with grab, piling (large diameter bored, RCD), piling (large diameter bored, oscillator), crawler crane (mobile, diesel), roller (vibratory), paint line marker, cherry picker, crane lorry, crane, welding set, lorry, breaker (hand-held, mass >10kg and <20kg), poker (vibratory, hand-held), concrete lorry mixer, concrete mixer, bar bender and cutter (electric), saw (circular, wood), water pump (submersible, electric), breaker (hand-held, mass <= 10kg), piling (vibrating hammer), drill rig (rotary type (diesel)), asphalt paver, cutter (circular, steel), drilling rig	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Construction Sites		√		EIAO-TM, NCO
S4.8.1.4	S3.12	Use of full enclosure for concrete pump, air compressor, grout mixer, grout pump, and generator	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Construction Sites		√		EIAO-TM, NCO
S4.8.1.10	S3.12	Scheduling of Construction Works outside School Examination Period	To minimize construction noise impact arising from the Project at the affected NSRs EBI1 and CC1	Contractor	Construction Sites near NSR EBI1 and CC1		√		EIAO-TM,NCO
S4.8.1.9	S3.12	Adoption of minimum separation distance between work zones and NSRs during School Examination Period	To minimize construction noise impact arising from the Project at the affected NSRs EBI1 and CC1	Contractor	Construction Sites near NSR EBI1 and CC1		√		EIAO-TM,NCO
S4.8.1.5	S3.12	Use of non-percussive equipment and method, such as silent piling by "Press-in" Method, to carry out sheet piling works	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent and Contractor	Construction Sites	√	√		EIAO-TM,NCO
S4.8.1.6	S3.12	Use of non-percussive equipment and method, such as hydraulic crusher and chemical expansion agent to carry out demolition / excavation works	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent and Contractor	Construction Sites	√	√		EIAO-TM,NCO
Operation Phase									
S4.8.2.4	S3.12.4	Provide low noise road surfacing material on Project Roads.	Reduce operation noise from road traffic	CEDD (design stage & construction phase) & HyD (operational phase)	Refer to Figure 4.3.1 to Figure 4.3.4	√	√	√	EIAO-TM

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S4.8.2.7	S3.12.4	Provide noise barriers on the Project roads	Reduce operation noise from road traffic	CEDD (design stage & construction phase) & HyD (operational phase)	Refer to Figure 4.3.1 to Figure 4.3.4	√	√	√	EIAO-TM, Guidelines on Design of Noise Barriers
S4.8.2.7	S3.12.4	Provide semi-enclosures and full enclosures on the Project roads	Reduce operation noise from road traffic	CEDD (design stage & construction phase) & HyD (operational phase)	Refer to Figure 4.3.1 to Figure 4.3.4	√	√	√	EIAO-TM, Guidelines on Design of Noise Barriers
<b>Water Quality Impact</b>									
Construction Phase									
S5.8.1.2 – S5.8.1.5	S4	<p>Construction works at Shing Mun River should be conducted by phases and adopted below measures:</p> <ul style="list-style-type: none"> <li>All pilling and excavation works in river should be fully enclosed by cofferdam/watertight steel casing. Cofferdam and watertight steel casing should be constructed to isolate the construction activities from the river water. The detail design of the cofferdams and watertight steel casing will be conducted by the Contractor during the construction phase to fulfil the requirements in DSD Technical Circular No. 14/200 “<i>Temporary Flow Diversions and Temporary Works Affecting Capacity in Stormwater System</i>” for DSD approval in order to formulate feasible options of these temporary structure.</li> <li>Water pumps should be used to collect any construction site runoff and ingress/seepage water within the cofferdam and watertight steel casing. The collected construction site surface runoff and ingress/seepage water should be diverted to the on-site wastewater treatment facilities for treatment to satisfactory levels before discharged. There is a need to apply to EPD for a discharge licence for discharging effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence and follow the TM-DSS.</li> <li>Silt curtains should be deployed to completely enclose the cofferdam/watertight steel casing/temporary steel platform prior to setting up piling works and, installation of cofferdam/watertight steel casing and demolition of temporary steel platform. Silt curtains should only be removed after completion of pilling works, removal of cofferdam/watertight steel casing and demolition of temporary steel platform. The Contractor should be responsible for the design, installation and maintenance of the silt curtain to minimize the impacts on water quality. The design and specification of the silt curtains should be submitted by the Contractor to the Project Manager for approval.</li> </ul>	To minimize water quality impact from construction bridge piers in Shing Mun River	CEDD (design stage) & Contractor	Construction site / Design and Construction Phase	√		√	WPCO; EIAO-TM; DSD Technical Circular No. 14/200; TM-DSS
S5.8.1.6	S4	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	To minimize water quality impact from boring and drilling activities	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM; TM-DSS
S5.8.1.7	S4	All vehicles and plant should be cleaned before they leave a construction site to minimise the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road	To minimize water quality impact from wheel washing	Contractor	Construction Sites / Construction Phase		√		Professional Persons Environmental Consultative Committee (ProPECC) Practice Note (PN) 1/94; WPCO; Waste Disposal Ordinance (WDO); TM-DSS

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		should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.							
S5.8.1.8	S4	Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	To minimize water quality impact from rubbish and litter in construction site	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM
S5.8.1.9 – S5.8.1.10	S4	The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed where applicable to minimise surface run-off and the chance of erosion. Surface run-off from construction sites should be discharged into storm drains via adequately designed sand / silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided as necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	To minimize water quality impact from construction site run-off	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM; ProPECC PN 1/94; TM-DSS
S5.8.1.11	S4	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly (as well as at the onset of and after each rainstorm) to prevent overflows and localised flooding.	To minimize water quality impact from construction site run-off	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM; TM-DSS
S5.8.1.12	S4	Construction works should be programmed to minimise soil excavation in the wet season (i.e. April to September). If soil excavation cannot be avoided in these months or at any time of year when rainstorms are likely, temporarily exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm run-off from washing across exposed soil surfaces.	To minimize water quality impact from construction site run-off	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM
S5.8.1.13	S4	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	To minimize water quality impact from construction site run-off	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM
S5.8.1.14	S4	Measures should be taken to minimise the ingress of rainwater into trenches. If excavation of trenches in the wet season is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	To minimize water quality impact from construction site run-off	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM; TM-DSS
S5.8.1.15	S4	Construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms.	To minimize water quality impact from construction site run-off	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM
S5.8.1.16	S4	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	To minimize water quality impact from construction site run-off	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM
S5.8.1.17	S4	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent	To minimize water quality impact from effluent discharge	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM; TM-DSS

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		discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence.							
S5.8.1.18	S4	The practices outlined in Environment, Transport and Works Bureau (ETWB) TC (Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" should also be adopted where applicable to minimise the water quality impacts upon any natural streams or surface water systems.	To minimize water quality impact from construction works in close proximity to inland water	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM; ETWB TC (Works) No. 5/2005
S5.8.1.19	S4	Sufficient chemical toilets should be provided in the works areas. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis.	To minimize water quality impact from sewage effluent from construction workforce	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM
S5.8.1.20	S4	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment.	To minimize water quality impact from construction site run-off	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM
S5.8.1.21	S4	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The WDO (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes.	To minimize water quality impact from accidental spillage of chemicals	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM, WDO
S5.8.1.22	S4	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	To minimize water quality impact from accidental spillage of chemicals	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM
S5.8.1.23	S4	Disposal of chemical wastes should be carried out in compliance with the WDO. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the WDO should be followed to avoid leakage or spillage of chemicals.	To minimize water quality impact from accidental spillage of chemicals	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM; WDO
S5.8.1.24	S4	The practices outlined in ETWB TC (Works) No. 5/2005 and ProPECC PN 1/94 should also be adopted where applicable to minimise the water quality impacts during diversion of watercourse.	To minimize water quality impact from diversion of Sha Tin Tau Nullah	Contractor	Construction Sites / Construction Phase		√		WPCO; EIAO-TM; ETWB TC (Works) No. 5/2005, ProPECC PN 1/94
Design and Operation Phases									
S5.8.2.1 – S5.8.2.3	S4	Best Management Practices (BMPs) to reduce storm water and non-point source pollution are also proposed as follows: <u>Design Measures</u> <ul style="list-style-type: none"> <li>Exposed surface shall be avoided within the proposed development to minimise soil erosion. Development site shall be either hard paved or covered by landscaping area where appropriate to reduce soil erosion.</li> <li>The existing watercourses in adjacent to the Project site will be retained to maintain the original flow path. The drainage system will be designed to avoid flooding based on the 1 in 50 year return period.</li> </ul>	To minimize water quality impact from surface runoff	Contractor	Project site / Design and Operation Phase	√			WPCO; ProPECC PN 5/93
S5.8.2.4 – S5.8.2.5	S4	<u>Devices/ Facilities to Control Pollution</u> <ul style="list-style-type: none"> <li>Screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening off large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system.</li> </ul>	To minimize water quality impact from surface runoff	Contractor	Project site / Design and Operation Phase	√		√	WPCO; ProPECC PN 5/93

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		Road gullies with standard design and silt traps should be provided to remove particles present in stormwater runoff, where appropriate.							
S5.8.2.6 – S5.8.2.7	S4	<u>Administrative Measures</u> <ul style="list-style-type: none"> <li>Good management measures such as regular cleaning and sweeping of road surface/ open areas are suggested. The road surface/ open area cleaning should also be carried out prior to occurrence rainstorm.</li> <li>Manholes, as well as stormwater gullies, ditches provided at the Project site should be regularly inspected and cleaned (e.g. monthly). Additional inspection and cleansing should be carried out before forecast heavy rainfall.</li> </ul>	To minimize water quality impact from surface runoff	Contractor	Project site / Design and Operation Phase	√		√	WPCO; ProPECC PN 5/93
<b>Waste Management Implications</b>									
Construction Phase									
S6.7.1.3	S5.2	<u>Good Site Practices</u> Recommendations for good site practices during the construction phase include: <ul style="list-style-type: none"> <li>Nomination of approved personnel, such as a site manager, to be responsible for good site practices, and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility;</li> <li>Training of site personnel in proper waste management and chemical waste handling procedures;</li> <li>Provision of sufficient waste reception/ disposal points, of a suitable vermin-proof design that minimises windblown litter;</li> <li>Arrangement for regular collection of waste for transport off-site and final disposal;</li> <li>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>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;</li> <li>A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed; and</li> <li>A WMP should be prepared as part of the EMP and should be submitted to the Engineer for approval. One may make reference to ETWB TCW No. 19/2005 for details.</li> </ul>		Contractor	Construction Sites		√		Waste Disposal Ordinance (WDO)
S6.7.1.4 & S6.7.1.10	S5.2	<u>Transportation of Waste</u> In order to monitor the disposal of C&D materials at PFRFs and landfills and to control fly-tipping, a trip-ticket system should be established in accordance with DEVB TCW No. 6/2010. A recording system for the amount of waste generated, recycled and disposed, including the disposal sites, should also be set up. Warning signs should be put up to remind the designated disposal sites. CCTV should be installed at the vehicular entrance and exit of the site as additional measures to prevent fly-tipping.		Contractor	Transportation Route of Waste / Construction Phase		√		DEVB TC(W) No. 6/2010
S6.7.1.5	S5.2	<u>Waste Reduction Measures</u> Recommendations to achieve waste reduction include:		Contractor	Construction Sites		√		WDO

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		<ul style="list-style-type: none"> <li>Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors;</li> <li>Any unused chemicals or those with remaining functional capacity shall be recycled;</li> <li>Maximising the use of reusable steel formwork to reduce the amount of C&amp;D material;</li> <li>Prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;</li> <li>Adopt proper storage and site practices to minimise the potential for damage to, or contamination of, construction materials;</li> <li>Plan the delivery and stock of construction materials carefully to minimise the amount of surplus waste generated;</li> <li>Adopt pre-cast construction method instead of cast-in-situ method for construction of concrete structures as much as possible; and</li> <li>Minimise over ordering of concrete, mortars and cement grout by doing careful check before ordering.</li> </ul>							
S6.7.1.7	S5.2	<u>Storage of Waste</u> Recommendations to minimise the impacts include: <ul style="list-style-type: none"> <li>Waste should be handled and stored well to ensure secure containment, thus minimising the potential of pollution;</li> <li>Maintain and clean storage areas routinely;</li> <li>Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and</li> <li>Different locations should be designated to stockpile each material to enhance reuse.</li> </ul>		Contractor	Construction Sites		√		-
S6.7.1.8	S5.2	<u>Collection of Waste</u> Licensed waste haulers should be employed for the collection and transportation of waste generated. The following measures should be enforced to minimise the potential adverse impacts: <ul style="list-style-type: none"> <li>Remove waste in timely manner;</li> <li>Waste collectors should only collect wastes prescribed by their permits;</li> <li>Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers;</li> <li>Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the WDO (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28);</li> <li>Waste should be disposed of at licensed waste disposal facilities; and</li> <li>Maintain records of quantities of waste generated, recycled and disposed.</li> </ul>		Contractor	Construction Sites		√		WDO; Waste Disposal (Charges for Disposal of Construction Waste) Regulation; Land (Miscellaneous Provisions) Ordinance
S6.7.1.9	S5.2	In order to monitor, document and verify the disposal of C&D materials at landfills and public fill reception facilities, as appropriate, and to control fly		Contractor	Construction Sites		√		DEVB TCW No. 6/2010

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		tipping, a trip-ticket system in accordance with DevB TCW No. 6/2010 Trip Ticket System for Disposal of Construction and Demolition Materials should be implemented. A Construction and Demolition Material Management Plan (C&DMMP) will be submitted together with the EIA Report to PFC for approval as required under Section 4.1.3 "Construction and Demolition Materials" of the Project Administration Handbook (PAH) for Civil Engineering Works.							
S6.7.1.10	S5.2	<p>The C&amp;D materials generated should be sorted on-site into inert C&amp;D materials and non-inert C&amp;D waste. To minimize the impact resulting from collection and transportation of C&amp;D materials as far as practicable, C&amp;D waste, such as wood, plastic, steel and other metals should be reused or recycled and, as a last resort, disposed to landfill. The existing fee-paying public car park on Man Lam Road near Caltex – Tai Wai petrol filling station (Lot No. STT2211) and an area between proposed T4 (EB) and T4 (WB) (at underpass section to northeast of Sha Tin Tau Village) have been identified as stockpiling areas before C&amp;D materials are reused or transported to landfill/public fill (for locations, refer to Figure 6.1). Inert C&amp;D materials will be recycled and reused as far as practicable. With reference to Table 6.2, inert C&amp;D materials are expected to be disposed of at Tseung Kwan O Area 137 Fill Bank. Within the stockpiling areas, the following measures should be taken to control potential environmental impacts or nuisance:</p> <ul style="list-style-type: none"> <li>• Proper handling and storage of waste by means of covers and/or water spraying system to minimize the potential environmental impact and to prevent materials from wind-blown or being washed away;</li> <li>• Covering materials during heavy rainfall;</li> <li>• Locating stockpiles to minimize potential visual impacts;</li> <li>• Warning signs should be put up to remind the designated disposal sites. CCTV should be installed at the vehicular entrance and exit of the site as additional measures to prevent fly-tipping; and</li> <li>• Minimizing land intake of stockpile areas as far as possible.</li> </ul>		Contractor	Construction Sites		√		ETWB TCW No.19/2005
S6.7.1.11 & S6.7.1.12	S5.2	<p>The sediment should be excavated, handled and transported in a manner that would minimise adverse environmental impacts. To minimise sediment disposal, the excavated marine-based sediment is proposed to be reused on site under the Project (e.g. as backfilling materials). The marine-based sediment would be treated using stabilization/solidification (S/S) technique prior to reuse by mixing with cement (e.g. Portland cement). The sediment will be provided with the necessary strength and any contaminants in the sediment will be immobilised in the cement/sediment mix after the S/S process. The treated materials will be tested for the Toxicity Characteristic Leaching Procedure (TCLP) and Unconfined Compressive Strength (UCS) and should meet the Universal Treatment Standards (UTS) with reference to EPD's <i>Practice Guide for Investigation and Remediation of Contaminated Land</i> and the UCS standard prior to reuse. If the treated materials did not meet the UTS and UCS standards, the materials will be re-treated and re-tested. Pilot-scale trial should be carried out before the commencement of treatment to determine the cement/sediment ratio that could achieve the treatment standards. Off-site sediment disposal should only be considered as a last resort in case sediment treatment / reuse not possible and should follow the procedures in <i>ETWB TCW No. 34/2002</i>.</p> <p>Requirements of the <i>Air Pollution Control (Construction Dust) Regulation</i>, where relevant, shall be adhered to during excavation, transportation and disposal of the sediment.</p>		Contractor	Construction Sites		√		Air Pollution Control (Construction Dust) Regulation
S6.7.1.13	S5.2	Any treatment area for the excavated sediment should be confined for carrying out the cement S/S process and any temporary stockpiling. The area should be		Contractor	Construction Sites		√		WPCO



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		designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).							
S6.7.1.14	S5.2	Workers shall, if necessary, wear appropriate personal protective equipment (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.		Contractor	Construction Sites		√		-
S6.7.1.15	S5.2	Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiles should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).		Contractor	Construction sites		√		WPCO
S6.7.1.16	S5.2	In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.		Contractor	Construction sites & transportation route of waste / Construction phase		√		-
S6.7.1.17	S5.2	Should marine disposal of sediment be unavoidable at later stage upon exhaustion of reuse options, separate submissions (e.g. Sediment Sampling and Testing Plan (SSTP) and Sediment Quality Report (SQR)) shall be submitted to EPD's Marine Dumping Control Section / Territorial Control Office if application of dumping permit under DASO is required. The rationale for sediment removal/disposal will also need to be submitted to the Marine Fill Committee (MFC)/CEDD for agreement in accordance with ETWB TC(W) No. 34/2002.		Contractor	Construction sites & transportation route of waste / Construction phase		√		DASO, ETWB TC(W) 34/2002.
S6.7.1.18	S5.2	If chemical waste is produced at the construction site, the Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Suitable containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to the licensed Chemical Waste Treatment Centre (CWTC), or other licensed facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.		Contractor	Construction Phase		√		ETWB TC(W) 19/2005; TC(W) 6/2010; WDO; Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S6.7.1.19	S5.2	General refuse should be stored in enclosed bins or compaction units separately from C&D materials. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D materials. An enclosed and covered area is preferred to reduce the occurrence of wind-blown light materials.		Contractor	Construction Phase		√		-
S6.7.1.20	S5.2	The recyclable component of general refuse, such as aluminium cans, paper and cleansed plastic containers shall be separated from other wastes. Provision and collection of recycling bins for different types of recyclable waste shall be		Contractor	Construction Phase		√		Public Health and Municipal Services Ordinance (Cap.132)

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		set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.							
S6.7.1.21	S5.2	The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.		Contractor	Construction Phase		√		-
<b>Ecological Impact (Terrestrial)</b>									
S8.11.2.1- S8.11.2.2	S7.2	<p><u>Avoidance of Recognized Site of Conservation Importance and Natural Habitats</u></p> <p>Avoidance of direct impact (e.g. removal or pruning of trees) on night roost ardeid site near HKHM has been undertaken through careful design of T4 alignment. Ardeid survey before the commencement of construction works (i.e. pre-construction ardeid survey) and monthly ardeid monitoring during construction phase is recommended to confirm the extent of ardeid night roosting and the location of roosting trees. A plan detailing the ardeid survey and monitoring methodology should be submitted to and approved by AFCD. The findings of the pre-construction ardeid survey should also be submitted to and approved by AFCD, whilst the monthly ardeid monitoring data should be included in the monthly EM&amp;A report. Besides, provision of screening (e.g. hoarding) during construction phase is recommended to avoid any unsolicited encroachment on the ardeid night roosting site located near the Project boundary.</p> <p>Most of the area in sites of conservation importance (e.g. LRCP) and natural habitats (e.g. woodland, natural watercourse) were excluded from the proposed footprint of construction works in order to avoid any direct impacts. For LRCP, other than the proposed installation of flexible barrier at the permanently affected area, direct impacts on LRCP within the Project footprint are avoided. Provision of screening (e.g. hoarding) during construction phase is recommended to confine the proposed works within Project boundary to screen adjacent habitats from construction phase activities.</p>	To avoid direct impacts on recognized Site of Conservation Importance, species of conservation importance and natural habitats	Project Proponent / Contractor	Construction Sites / Design, Pre-construction and Construction Phases	√	√		EIAO-TM, Development Bureau Technical Circular (Works) No. 04/2020
S8.11.3.1	S7.2	<p><u>Minimizing Impacts on Site of Conservation Importance</u></p> <p>Alternative locations, construction methods and design of the proposed slope works within LRCP have been explored when formulating the Revised Trunk Road T4 project with a view to avoiding and minimizing direct encroachment upon LRCP. Considered the works area of soil nailing will be largely located at woodland and mixed woodland within LRCP, which will likely require tree felling and large extent of vegetation trimming at understorey, the installation flexible barrier is proposed due to comparatively minor direct impact to LRCP.</p> <p>In order to minimize potential direct impact to LRCP, the proposed flexible barrier will be located at the fringe of LRCP closest to Sha Tin Road as far as practicable. Also, the design of proposed works (e.g. extent, dimension, construction method) would be carefully designed and adjusted on site to avoid/minimize tree felling and vegetation trimming to the maximum practicable extent. Landscape works such as planting of native shrubs in pits in front of the flexible barriers and provide subdued colour paint to the flexible barriers would be undertaken to reinstate the affected area upon the completion of works.</p>	To minimize direct impacts on Site of Conservation Importance	Project Proponent / Contractor	Construction Sites / Design and Construction Phases	√	√		EIAO-TM, Guidelines on Tree Preservation during Development and Development Bureau Technical Circular (Works) No. 4/2020 Tree Preservation
S8.11.3.2- S8.11.3.3	S7.2	<p><u>Minimizing Impacts on Ardeid Flight Path and Bird Collision</u></p> <p>To minimize the disturbance on ardeid flight path, no semi-enclosure would be installed at the northern part of proposed dual 2-lane flyover near HKHM, while installation and height of noise barrier at the southern part of proposed dual 2-lane flyover near the Riverpark would be minimized, as far as possible. Moreover, the piers of the proposed dual 2-lane flyover would be designed to</p>	To minimize impacts on ardeid flight path and bird collision	Project Proponent / Contractor	Construction Sites / Design, Construction and Operation Phases	√			EIAO-TM, Guidelines on Design of Noise Barriers and Practice Notes No. BSTR/PN/003 (Revision E)

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		align with the piers of the existing Lion Bridge to maintain a flight corridor under the proposed flyover.  Use of tinted materials and superimposing dark patterns or strips on the barrier, as per EPD/Highways Department requirements stated in "Guidelines on Design of Noise Barriers" and "Practice Notes No. BSTR/PN/003 (Revision E)". Comment from AFCD on the design of the barrier would also be sought if necessary							
S8.11.3.4-S8.11.3.5	S7.2	<u>Protection of Flora Species of Conservation Importance</u>  Two species (Butulang Canthium and Ailanthus) were located within the Project footprint near Sha Tin Tau Village. To avoid adverse impact to these plant species, a detailed vegetation survey should be conducted prior to site clearance by a qualified ecologist/botanist with at least 5 years relevant experience within the concerned areas to ascertain the presence, update the conditions and determine the abundance and locations of the flora species of conservation importance. A Preservation and Transplantation Proposal should be prepared to present the findings of detailed vegetation survey, preservation and/or transplantation methodology, implementation programme, and monitoring programme. The proposal should be submitted to and approved by AFCD prior to site clearance.  Tree felling should be minimized during slope stabilization including those within LRCP as far as possible. For individual trees within LRCP, recommended mitigation measures are addressed in Section 9. Apart from tree individuals, five flora species of conservation importance (including eight individuals of Butulang Canthium, three individuals of Luofushan Joint-fir, four individuals of Small Persimmon and three individuals of <i>Rhododendron</i> spp. in LRCP and one individual of Hairy-fruited Ormosia outside LRCP) were recorded near the Project footprint of flexible barrier to be constructed within LRCP. Two flora species of conservation importance (including two individuals of Butulang Canthium and one individual of Incense Tree) were recorded in the vicinity of Project footprint of rigid barrier outside LRCP. To protect the individual trees and recorded flora species of conservation importance during the construction of the flexible and rigid barriers near Sha Tin Road and within LRCP, a qualified ecologist/botanist with at least 5 years relevant experience should be deployed to conduct tree/vegetation surveys to identify, tag and demarcate any individual of tree and/or floral species of conservation importance located within or near the Project footprint prior to site clearance. All the identified flora species of conservation importance above and retained trees as recommended in Section 9 within LRCP shall be preserved on site with provision of plant protection zones with rigid fencing. Plant protection zones of at least 1.5 m setback from the trunk of the individual tree or flora species of conservation importance would be set up as far as possible. No access and construction activities would be allowed within the plant protection zones. Findings of the tree survey/detailed vegetation surveys conducted within LRCP, details of the preservation on trees and flora species of conservation importance and any additional plant protection and mitigation measures required shall be reviewed and supplemented, where necessary, in the Preservation and Transplantation Proposal to be submitted and approved by AFCD prior to site clearance.	To protect flora species of conservation importance	Project Proponent / Contractor	Construction Sites / Design, Pre-construction, Construction Phases		√	√	EIAO-TM
S8.11.3.6-S8.11.3.7	S7.2	<u>Minimizing Disturbance Impacts on Natural Habitats and Fauna</u>  To minimize disturbance impacts, provision of screening (e.g. hoarding, vertical/semi-enclosures noise barriers) during construction phase and planting of peripheral screening plants/vertical green during operation phase is	To minimize disturbance impacts on natural habitats and fauna	Contractor	Construction Sites / Construction and Operation Phases		√		EIAO-TM

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		<p>recommended. The following standard good site practices should also be implemented throughout the construction phase:</p> <ul style="list-style-type: none"> <li>• Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimize disturbance to natural habitats;</li> <li>• Construction activities should be restricted to works areas that should be clearly demarcated;</li> <li>• All temporary works areas should be reinstated after completion of the works; and</li> <li>• Waste skips should be provided to collect general refuse and construction wastes and properly disposed off-site in a timely manner.</li> </ul>							
S8.11.3.8-S8.11.3.10	S7.2	<p><u>Measures to Minimize Glare, Air Quality, Noise and Disturbance Impacts</u></p> <p>Implementation of mitigation measures (e.g. good site practices and lining hoarding at the Project boundary) should be considered to minimize construction impact. Considered the timing of sunset would vary throughout the year, two set of proposed restricted hours for construction works within 100 m from the ardeid night roost site would be proposed as 16:30-07:30 during dry season (October - March) and 17:00-07:00 during wet season (April - September). Construction works between the hours of 18:00 to 08:00 and on Sundays and Public Holidays within country park area should be avoided. The intensity of light should also be controlled to the lowest possible level. Unnecessary lighting should be turned off outside working hours of the construction sites. A balance between lighting for safety and avoiding excessive lighting can be achieved through the use of directional lighting (i.e. direct lighting away from the ardeid night roosting site, natural habitats, and LRCP during construction and operation phases).</p> <p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation (Cap. 311) to avoid and minimize impacts to the surrounding habitats and the associated wildlife arising from the construction activities. Good site practices could be adopted, such as regular spraying of haul roads, proper storage of construction materials.</p> <p>Noise impact during construction phase should be avoided and minimized to reduce the disturbance to the habitats adjacent to the works areas, such as use of Quiet Mechanical Plant (QMP), orientate emit strong noise emitted machines / plant away from nearby habitat.</p>	To minimize disturbance impacts on natural habitats and associated fauna	Contractor	Construction Sites / Construction and Operation Phases		√	√	EIAO-TM, Air Pollution Control (Construction Dust) Regulation (Cap. 311) and EPD requirements on "Recommended Pollution Control Clauses for Construction Contracts"
S8.11.3.11-8.11.3.12	S7.2	<p><u>Minimising Water Quality Impacts</u></p> <p>The construction method and sequence of the proposed bridge piers at SMRC should be carefully designed, to make sure that all piling and excavation works in river should be fully enclosed by cofferdam. Construction activities in watercourses should be fully enclosed by watertight cofferdam walls. Water pumps should be used to collect any construction site runoff and ingress/seepage water within the cofferdam, and diverted to the on-site wastewater treatment facilities for treatment to satisfactory levels before discharged. Other good site practices as described in ETWB Technical Circular (Works) No. 5/2005 should also be adopted where applicable.</p> <p>The following major measures shall be implemented during the watercourse diversion of S5, such as:</p> <ul style="list-style-type: none"> <li>• Cofferdams or impermeable structures should be installed as appropriate to isolate the water flow from the construction works area;</li> <li>• Dewatering or flow diversion shall be conducted prior to the construction works to prevent water overflow to the surrounding area;</li> </ul>	To minimize water quality impacts	Contractor	Construction Sites / Design and Construction Phases		√		EIAO-TM and ETWB Technical Circular (Works) No. 5/2005

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		<ul style="list-style-type: none"> <li>Watercourse diversion should be conducted in dry season as far as practicable when the water flow is low; and</li> <li>Water drained from the watercourse shall be diverted to new/temporary drainage for watercourse diversion.</li> </ul>							
<b>Landscape and Visual Impacts</b>									
Table 9.10 under 9.8.2	S8.2	<p><u>Preservation of Existing Vegetation (CM1)</u></p> <p>All the existing vegetation and trees to be retained and not to be affected by the Project shall be carefully protected during construction accordance with DEVB TC(W) No. 4/2020 - Tree Preservation and the latest Guidelines on Tree Preservation during Development issued by GLTMS of DEVB. Any existing vegetation in landscaped areas and natural terrain not to be affected by the Project shall be carefully preserved.</p> <p>In particular, the existing vegetation in the ardeid night roosting sites along Shing Mun River Channel identified in Ecological section of this EIA Report shall be preserved to minimize disturbance to the ardeids.</p> <p>Besides, the proposed alignment and footing of the natural terrain hazards mitigation works (i.e. flexible barrier) shall be carefully designed and arranged to preserve existing trees and those of conservation importance (i.e. Canthium dicoccum and Ixonanthes chinensis) on the hillside along Sha Tin Road.</p>	To preserve existing vegetation.	Project Proponent / Contractor	Construction Sites / Design and Construction Phases	✓	✓		DEVB TC(W) No. 4/2020 - Tree Preservation and the latest Guidelines on Tree Preservation during Development issued by GLTMS of DEVB
Table 9.10 under 9.8.2	S8.2	<p><u>Preservation of Old and Valuable Trees (OVTs) (CM2)</u></p> <p>In particular Old and Valuable Trees (OVTs) will be preserved and protected according to DEVB TC(W) No. 5/2020, Management Guidelines for Mature Trees and Guideline for Tree Risk Assessment and Management Arrangement by DEVB. Construction works within tree protection zones of the OVTs shall be avoided as far as possible, in particular for the 5 nos. of OVTs Cinnamomum camphora [OVT nos: LCSD ST/7, LCSD ST/8, LCSD ST/9, LCSD ST/10 and LCSD ST/11] adjoining the site boundary along Chung Ling Road and 1 no. of OVT Ficus microcarpa [OVT no: HYD ST/3] along Chik Chuen Street. Proper tree protection measures shall be implemented for the OVTs adjoining the site boundary during the construction stage.</p> <p>Should construction works within the tree protection zones are unavoidable, application in accordance with DEVB TC(W) No. 5/2020 to be submitted with full justifications and method statement to GLTMS and relevant tree maintenance departments for approval. The detailed Tree Protection Specification shall be included in the Contract Specification.</p>	To preserve and protect particular Old Valuable Trees.	Project Proponent / Contractor	Construction Sites / Design and Construction Phases	✓	✓		DEVB TC(W) No. 5/2020, Management Guidelines for Mature Trees and Guideline for Tree Risk Assessment and Management Arrangement by DEVB
Table 9.10 under 9.8.2	S8.2	<p><u>Transplanting of Affected Trees (CM3)</u></p> <p>Trees with particular interest and high amenity value unavoidably affected by the works shall be transplanted where practical. A detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with DEVB TC(W) Nos. 6/2015 and 4/2020 and Guidelines on Tree Transplanting by DEVB and final locations of transplanted trees should be agreed prior to commencement of the work.</p> <p>One tree of particular interest <i>Ficus benjamina</i> with DBH over 1m outside Hong Kong Heritage Museum will be unavoidably affected by the construction of elevated roads. Tree transplanting is proposed, subject to the review on technical feasibility and sensitivity analysis in detail design stage. Various limitations to be carefully considered in detail design stage such as the arrangement of long root pruning period along the roadside, formation of large root ball, temporary traffic/construction arrangement for uplifting and transplanting the large tree, availability of final receptor location for the large tree in the vicinity, tree safety concern during root pruning period and after</p>	To transplant particular interest and high amenity value trees unavoidably affected by the works.	Project Proponent / Contractor	Construction Sites / Design and Construction Phases	✓	✓		DEVB TC(W) Nos. 6/2015 and 4/2020 and Guidelines on Tree Transplanting by DEVB  Section 2.6 of the TRAM Guidelines

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		transplanting, the ability to recover from transplanting stress and the cost effectiveness etc. The final decision on tree transplanting will be confirmed in detail design stage taking into account the mentioned limitations and further advice from the existing and future tree maintenance departments. In case removal of the subject tree of particular interest is considered unavoidable in later stage, the procedures as set out in Section 2.6 of the TRAM Guidelines and suitable initiatives to commemorate the tree (e.g. replanting) shall be considered in accordance with Para. 26 (d) of DEVB TC(W) No. 4/2020.							
Table 9.10 under 9.8.2	S8.2	<u>Control of Night-time Lighting Glare (CM4)</u> Any lighting provision of the construction works at night shall be carefully control to prevent light overspill to the nearby VSRs and into the sky. Relevant best practices as suggested in the "Guidelines on Industry Best Practices for External Lighting Installations" promulgated by ENB shall be adopted.	To prevent light overspill to the nearby VSRs and into the sky.	Contractor	Construction Sites / Construction Phase		✓		"Guidelines on Industry Best Practices for External Lighting Installations" promulgated by ENB
Table 9.10 under 9.8.2	S8.2	<u>Erection of Decorative Screen Hoarding (CM5)</u> Decorative Hoarding, which is compatible with the surrounding settings, shall be erected during construction to minimise the potential landscape and visual impacts due to the construction works and activities. Greening measure such as planting of peripheral screening plants/vertical green along hoarding shall be explored.	To minimise the potential landscape and visual impacts due to the construction works and activities.	Contractor	Construction Sites / Construction Phase		✓		-
Table 9.10 under 9.8.2	S8.2	<u>Management of Construction Activities and Facilities (CM6)</u> The facilities and activities at works sites and areas, which include site office, temporary storage areas, temporary works etc., shall be carefully managed and controlled on the height, deposition and arrangement to minimise any potential adverse landscape and visual impacts. Careful planning shall be arranged for the potential site office at the existing carpark area outside Hong Kong Heritage Museum.	To minimise any potential adverse landscape and visual impacts.	Contractor	Construction Sites / Construction Phase		✓		-
Table 9.10 under 9.8.2	S8.2	<u>Reinstatement of Temporarily Disturbed Landscape Areas (CM7)</u> All hard and soft landscape areas disturbed temporarily during construction due to temporary excavations, temporary works sites and works areas shall be reinstated to equal or better quality, to the satisfaction of the relevant Government Departments.	To reinstate to equal or better quality of temporarily disturbed landscape areas.	Contractor	Construction Sites / Construction Phase		✓		-
Table 9.10 under 9.8.2	S8.2	<u>Reinstatement of Affected Watercourses (CM8)</u> The affected modified watercourses in Shing Mun River Channel and Sha Tin Tau Village shall be reinstated upon completion of construction. The construction method and sequence of the proposed bridge piers at Shing Mun River Channel shall be carefully designed, to make sure that all piling and excavation works in river should be fully enclosed by cofferdam/ watertight steel casing/temporary steel platform to further minimize any adverse water quality impact. During diversion of watercourse of Sha Tin Tau Nullah, precaution measures shall be implemented to prevent adverse water quality impact to the surrounding environment. Various measures to mitigate the potential water quality impacts from the land-based construction works shall be implemented as detailed in Section 5 of this EIA Report. Good site practices as described in ETWB TC(W) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" and ProPECC PN1/94 "Construction Site Drainage" should be adopted where applicable.	To minimize the disturbance to watercourses as far as practicable.	Contractor	Construction Sites / Construction Phase		✓		ETWB TC(W) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works"  ProPECC PN1/94 "Construction Site Drainage"
Table 9.11 under 9.8.2	S8.2	<u>Compensatory Planting for Loss of Existing Trees (OM1)</u> Any trees to be felled under the Project shall be compensated in accordance with DEVB TC(W) No. 4/2020 - Tree Preservation. The compensatory plantings	To enhance ecological value and improve overall value of landscape setting.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	✓	✓	✓	DEVB TC(W) No. 4/2020 - Tree Preservation, GEO Publication No. 1/2011, the Greening Master Plan

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		<p>shall be realistic, practicable and sustainable with a holistic consideration to balance the quantity and quality of tree planting, and follow the "right tree for the right place" principles.</p> <p>For trees to be compensated on slopes, the guidelines for tree planting stipulated in GEO Publication No. 1/2011 will be followed.</p> <p>The quality aspects such as improving the vegetation diversity of native species mix, enhancing ecological value and improving overall value of landscape setting etc. of the compensatory planting proposal shall be fully considered. The proposed planting species shall be made reference to the Greening Master Plan issued by CEDD and the Street Tree Selection Guide issued by DEVB.</p> <p>Compensatory tree planting in roadside and flat areas and woodland mix planting on slopes are proposed subject to the gradient of the proposed new slopes. A minimum of 250 heavy standard trees and approximately 3,400 nos. of tree whips as compensatory woodland mix planting are proposed.</p>							issued by CEDD and the Street Tree Selection Guide issued by DEVB
Table 9.11 under 9.8.2	S8.2	<p><u>Landscape Treatment on Slopes (OM2)</u></p> <p>Woodland mix planting, tree whips and/or shrub mix shall be applied to new soil cut and fill slopes, shrub and climber planting shall be applied to toe-wall planters along retaining structures as far as possible in accordance with technical guidelines set out in GEO Publication No. 1/2011 to maximize the greening provision along the road improvement works. Approximate 21,800m<sup>2</sup> of landscape treatment on slopes are proposed, which include approximate 11,300m<sup>2</sup> area of proposed compensatory woodland mix planting with approximately 3,400 nos. of tree whips to be planted under OM1.</p> <p>Use of unobtrusive colours and tones shall be proposed for all hard elements on slopes including the natural terrain hazards mitigation works (i.e. flexible barrier). The flexible barrier shall avoid placing in front of the vegetated area so that visual screening can be provided by the vegetation as per the GEO Publication No. 1/2011. Use of native species shall be maximized as far as possible in accordance with the Guiding Principles on Use of Native Plant Species in Public Works Projects issued by DEVB.</p>	To maximize the greening provision along the road improvement works.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	✓	✓	✓	GEO Publication No. 1/2011 and the Guiding Principles on Use of Native Plant Species in Public Works Projects issued by DEVB
Table 9.11 under 9.8.2	S8.2	<p><u>Provision of Screen Planting (OM3)</u></p> <p>Screen or buffer planting shall be provided at the periphery of the above ground structures along the roadside. Use of plant species with tall and bushy form can serve as a green buffer to soften the hard structural elements such as along noise barriers or near the viaduct piers. Approximate 20,300m<sup>2</sup> of screen planting areas are proposed. This measure may additionally form part of the compensatory planting and will improved compatibility with the surrounding environment. Early advice from maintenance / management parties and ACABAS shall be sought.</p>	To soften the hard structural elements.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	✓	✓	✓	-
Table 9.11 under 9.8.2	S8.2	<p><u>Maximization of Roadside Planting (OM4)</u></p> <p>Although most of the works are carried out along the existing transportation corridors, greening opportunities for roadside planting shall be maximized as far as possible. Roadside Planting shall be effective visual relief to the adjacent VSRs. Planting opportunities shall be also explored in the shaded area underneath the proposed elevated roads, such as the area outside Hong Kong Heritage Museum, to maximize the greening effect by shade-tolerant tree or shrub species. Due consideration shall be given to the selection of appropriate plant species on shade-tolerance, hardiness and headroom of the structure above. The roadside plant species shall be made reference to the Greening Master Plan issued by CEDD and the Street Tree Selection Guide issued by DEVB.</p>	To maximize the greening effect by shade-tolerant tree or shrub species.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	✓	✓	✓	The Greening Master Plan issued by CEDD and the Street Tree Selection Guide issued by DEVB

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Measures & Main Concerns to Address	Who to Implement the Measure?	Location of the Measure	When to Implement the Measure? *			Standards/Requirements for the Measures to Achieve
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Table 9.11 under 9.8.2	S8.2	<u>Re-provision of Affected Open Space (OM5)</u> To re-provide the affected open space of Sha Tin Tau Sitting-out Area, that is temporarily closed during the construction phase of the Project, in better quality and design for the enjoyment of the local residents. Both soft and hard landscape proposals shall be provided for LCSD's agreement.	To re-provide the affected open space.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	✓	✓	✓	-
Table 9.11 under 9.8.2	S8.2	<u>Visually pleasing aesthetic treatment on noise barriers and noise enclosures (OM6)</u> Sensitive design of noise barriers and noise enclosures with chromatic measures. The design and color themes shall be coherent with the existing noise barrier design along the adjoining transportation corridors such as Tai Po Road to echo with the visual context and character of the transportation corridors. A combination of tinted or transparent panels at top and solid panels at the bottom could allow the daylight to pass through and lighten the visual impact. AFCD's advice on the design of anti-bird collision measures shall be sought. The detail design of noise barriers and noise enclosures shall make reference to "Guidelines on Greening of Noise Barriers" published by DEVB in appropriate locations, subject to the agreement of future maintenance departments. Greening measures such as screen planting and/or climbers along the barriers shall be fully explored in design stage. Early advice from maintenance / management parties and ACABAS shall be sought.  The extent and height of the noise barrier across the Shing Mun River Channel shall be sensitively designed to minimize disturbance to the flight path of ardeids. AFCD's advice on the design of anti-bird collision measures shall be sought.	To echo with the visual context and character of the adjoining transportation corridors.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	✓	✓	✓	"Guidelines on Greening of Noise Barriers" published by DEVB
Table 9.11 under 9.8.2	S8.2	<u>Aesthetically pleasing design for footbridges, pedestrian subways, cycle paths, carriageways and other highways structures (OM7)</u> Footbridges, pedestrian subways, cycle paths, carriageways and other highways structures proposed shall be sensitively designed in the regard of form, tonal colour and texture so as to minimise any potential adverse landscape and visual impact. Greening measures such as climbers along viaduct piers and shrubs along footbridges shall be fully explored in design stage. Early advice from maintenance / management parties and ACABAS shall be sought.	To minimise any potential adverse landscape and visual impact.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	✓	✓	✓	-
<b>Impact on Cultural Heritage</b>									
S10.7.1.1	S9.2	<u>Pre- and post- condition survey</u> Pre- and post- condition survey of Gatehouse of Pok Ngar Villa, Tsang Tai Uk, Li Cottage and Ng Yuen shall be carried out by professional qualified building surveyor or engineer prior to and after the construction respectively. The survey reports shall be submitted to AMO for record.	To assess the structural integrity and condition of the built heritages for better implementation of protective measures.	Project Proponent / Contractor	Gatehouse of Pok Ngar Villa, Tsang Tai Uk, Li Cottage and Ng Yuen	✓		✓	EIAO-TM Annexes 10 and 19; Guidelines for Cultural Heritage Impact Assessment
S10.7.1.2, S10.7.1.3 and Table 10.5	S9.2	<u>Monitoring of vibration, settlement and tilting</u> Monitoring of vibration, settlement and tilting incorporated with a set of Alert, Alarm and Action (3As) system shall be employed for Tsang Tai Uk, Gatehouse of Pok Ngar Villa, Ng Yuen, Li Cottage, Lau Ancestral Hall, and High Rock Christian Camp, No. 1, 2 and 3 First Street, OLD1, OLD9, OLD11 – 21, OLD26 – 28 during the construction phase. The proposed 3As limiting criteria are presented in Table 10.5. The actual limiting criteria should be further agreed with the AMO. Monitoring proposal for the heritage sites, including checkpoint locations, installation details, response actions for each of the 3As levels and frequency of monitoring should be submitted for AMO's consideration. Installation of monitoring checkpoints shall be carried out in great care and	To ensure the indirect impacts, including ground-borne vibration, settlement and tilting would not cause damages to the built heritages.	Project Proponent / Contractor	Tsang Tai Uk, Gatehouse of Pok Ngar Villa, Li Cottage, Lau Ancestral Hall, Ng Yuen, High Rock Christian Camp, No. 1, 2 and 3 First Street, OLD1, OLD9, OLD11 – 21, OLD26 – 28		✓		EIAO-TM Annexes 10 and 19; Guidelines for Cultural Heritage Impact Assessment



EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Measures & Main Concerns to Address	Who to Implement the Measure?	Location of the Measure	When to Implement the Measure? *			Standards/Requirements for the Measures to Achieve
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		adequate protection shall be provided so as to avoid unnecessary disturbance / damage to nearby historic fabrics. Photo records of monitoring checkpoints shall be submitted upon installation for AMO's records. Prior agreement and consent should be sought from the owner(s), stakeholder(s) and relevant Government department(s) for the installation of monitoring checkpoints. Monitoring records should also be submitted to AMO on regular basis and alert AMO should the monitoring reach 3As levels.							
S10.7.1.4	S9.2	<u>Necessary lateral support and de-watering</u> Excavation works in close vicinity to Gatehouse of Pok Ngar Villa, Tsang Tai Uk, Li Cottage, Ng Yuen, OLD26 should not jeopardize stability of the historic buildings. It should not undermine or cause damage to foundation of the historic building. Foundation information of the historic building shall be verified on site if needed, sufficient lateral support should be provided and de-watering (if required) should be carried out with great cautions to control ground movement and change of ground water regime at the heritage site.	To ensure stability of the historic buildings.	Project Proponent / Contractor	Gatehouse of Pok Ngar Villa, Tsang Tai Uk, Li Cottage, Ng Yuen, OLD26		√		EIAO-TM Annexes 10 and 19; Guidelines for Cultural Heritage Impact Assessment
S10.7.1.5 and S10.7.1.6	S9.2	<u>Buffer zones and physical barriers</u> Buffer zones of 5m from Tsang Tai Uk, Gatehouse of Pok Ngar Villa, OLD26 should be set up respectively, in which no heavy construction machineries and construction storage should trespass the buffer zones at the same elevations of the three built heritage resources. Physical barriers should also be set up to clearly demarcate the buffer zones to avoid potential damage due to site negligence. Substantial physical barriers, such as hoarding or water-filled barriers, should be set between the project site and each of the three built heritage resources, Li Cottage, Ng Yuen, OLD26, in order to ensure no heavy construction machineries and construction storage can intrude the built heritage, and avoid any damages due to machinery operation and site negligence.	To avoid direct impacts of damages through contacting with construction machineries and site negligence.	Project Proponent / Contractor	Gatehouse of Pok Ngar Villa, Tsang Tai Uk, Li Cottage, Ng Yuen, OLD26		√		EIAO-TM Annexes 10 and 19; Guidelines for Cultural Heritage Impact Assessment
S10.7.1.7	S9.2	<u>Protective covering</u> Protective covering of plastic sheets shall be provided for Gatehouse of Pok Ngar Villa, Tsang Tai Uk, Li Cottage and Ng Yuen during construction.	To avoid impacts of dust nuisance.	Project Proponent / Contractor	Gatehouse of Pok Ngar Villa, Tsang Tai Uk, Li Cottage and Ng Yuen		√		EIAO-TM Annexes 10 and 19; Guidelines for Cultural Heritage Impact Assessment
S10.7.1.5	S9.2	<u>Fencing</u> Fencing should also be set up to clearly demarcate the buffer zones, so as to avoid damages of site negligence. Protective covering of plastic sheets shall be provided for Tsang Tai Uk and the Gatehouse of Pok Ngar Villa during construction to avoid impacts of dust nuisance.	To avoid direct impacts of damages through contacting with construction machineries and site negligence.	Project Proponent / Contractor	Tsang Tai Uk, Gatehouse of Pok Ngar Villa, OLD26		√		EIAO-TM Annexes 10 and 19; Guidelines for Cultural Heritage Impact Assessment

\*Des = Design; C = Construction; O = Operation