

Appendix 12.1 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									
S3.8.1.1	S2.7.1	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
S3.8.1.2	S2.7.1	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"> • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • 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. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • 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. • 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. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. • 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. • Locate all the dusty activities away from any nearby ASRs as far as possible. • Erect higher hoarding at the location with ASRs in immediate proximity to the project site boundary. 	To minimize construction dust	Contractor	Construction Sites		✓	<ul style="list-style-type: none"> • 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); and • Air Pollution Control (Fuel Restriction) Regulation 	

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		<ul style="list-style-type: none"> All malodorous materials shall be placed as far as possible from any ASRs. The stockpiled malodorous materials shall be covered entirely by plastic tarpaulin sheets. The malodorous materials shall be removed from site as soon as possible and shall not be stockpiled overnight at the site. Loading of the malodorous materials onto the dump trucks shall be controlled to avoid spillage. 							
S3.2.6	S2.7.1	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	√	√		<ul style="list-style-type: none"> 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
Noise Impact									
Construction Phase									
S4.8.1.3	S3.12	Use of quiet PME. Use of movable noise barriers and barriers for excavator, mobile crane, loader, dump truck, hydraulic crusher, crawler crane, vibratory roller, paint line marker, dump truck with grab, cherry picker, saw (circular wood), lorry, air compressor, grout mixer, grout pump, water pump (submersible), concrete lorry mixer, concrete mixer, concrete pump, bar bender and cutter (electric), poker (vibratory hand held), welding set and asphalt paver.	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 generator (silenced) and concrete pump	To minimize construction noise impact arising from the Project at the affected NSRs.	Contractor	Construction Sites		√		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 a hand held concrete crusher to carry out demolition/excavation work	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	Provide low noise road surfacing material on Project Roads	Reduce operation noise from road traffic	HyD (design stage, construction phase and operation phase)	Refer to Figure 4.5a and 4.5b	√	√	√	EIAO-TM
S4.8.2.4	S3.12	Provide noise barriers on the Project Roads	Reduce operation noise from road traffic	HyD (design stage, construction phase and operation phase)	Refer to Figure 4.5a and 4.5b	√	√	√	EIAO-TM, Guidelines on Design of Noise Barriers
S4.8.2.4	S3.12	Provide semi-enclosure and full enclosure on the Project Roads	Reduce operation noise from road traffic	HyD (design stage, construction phase and operation phase)	Refer to Figure 4.5a and 4.5b	√	√	√	EIAO-TM, Guidelines on Design of Noise Barriers

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Water Quality Impact									
Construction Phase									
S5.8.2.3	-	The guidelines for handling and disposal of construction site discharges as detailed in the ProPECC PN 1/94 "Construction Site Drainage" should be followed, where applicable.	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		Water Pollution Control Ordinance(WPCO); Professional Persons Environmental Consultative Committee (ProPECC) Practice Note(PN) 1/94
S5.8.2.3	-	All effluent discharged from the construction site should comply with the standards stipulated in the TM-DSS. Minimum distances of 100m should be maintained between the discharge points of construction site effluent and the existing seawater intakes, and no effluent shall be discharged into the typhoon shelter.	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM, WSD's Water Quality Criteria for Flushing Water at Sea Water Intakes
S5.8.2.4	-	Surface runoff 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	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		Professional Persons Environmental Consultative Committee (ProPECC) Practice Note(PN) 1/94
S5.8.2.4	-	Channels or earth bunds or sand bag barriers should be provided on site during construction works to properly direct stormwater to such silt removal facilities. Perimeter channels should be provided on site boundaries where necessary to intercept storm runoff 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	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM,ProPECC PN 1/94
S5.8.2.5	-	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM,ProPECC PN 1/94
S5.8.2.6	-	Construction works should be programmed to minimize soil excavation works in rainy seasons (April to September). If soil excavation cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary 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 runoff from washing across exposed soil surfaces. Arrangements should always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM,ProPECC PN 1/94
S5.8.2.7	-	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	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM,ProPECC PN 1/94
S5.8.2.8	-	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons 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	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM,ProPECC PN 1/94

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S5.8.2.9	-	Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM, ProPECC PN 1/94
S5.8.2.10	-	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 runoff from getting into foul sewers. Discharge of surface runoff into foul sewers must always be prevented in order not to unduly overload the foul sewerage system	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM, ProPECC PN 1/94
S5.8.2.11	-	If bentonite slurries are required for any construction works, they should be reconditioned and reused wherever practicable to minimise the disposal volume of used bentonite slurries. Temporary enclosed storage locations should be provided on-site for any unused bentonite that needs to be transported away after the related construction activities are completed. Requirements as stipulated in ProPECC Note PN 1/94 should be closely followed when handling and disposing bentonite slurries	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM, ProPECC PN 1/94
S5.8.2.12	-	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	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM; ProPECC PN 1/94
S5.8.2.13	-	All vehicles and plants should be cleaned before they leave a construction site to minimise the deposition of earth, mud and debris on roads. A wheel washing bay should be provided at every site exit if practicable and washwater 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 should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains	Minimize water quality impact from general construction activities and construction site run-off	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM; ProPECC PN 1/94
S5.8.2.14	-	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 impact from construction site	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM, Waste Disposal Ordinance (WDO)
S5.8.2.15	-	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 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	To minimize impact from construction site	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM; Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS)
S5.8.2.16	-	The practices outlined in ETWB TC (Works) No. 5/2005 <i>Protection of natural streams / rivers from adverse impacts arising from construction works</i> should also be adopted where applicable to minimise the water quality impacts on any natural streams or surface water systems.	To minimize impact of construction works at close proximity of inland water	Contractor	Construction Sites /Construction Phase		√		
S5.8.2.17	-	Sufficient chemical toilets should be provided in the works area, with a licensed waste collector employed to clean the chemical toilets on a regular basis	To minimise impact from workforces sewage effluent	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM
S5.8.2.18	-	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site will provide an effective	To minimise impact from workforces sewage effluent	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM

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		control of any malpractices and can encourage continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures							
S5.8.2.19	-	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (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 the impact from accidental spillage	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM, WDO
S5.8.2.20	-	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 leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges	To minimize the impact from accidental spillage	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM
S5.8.2.21	-	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 requirements to deal with chemical wastes	To minimize the impact from accidental spillage	Contractor	Construction Sites /Construction Phase		√		WPCO; EIAO-TM, WDO
Operation Phase									
S5.8.3.1	-	The ProPECC PN 5/93 "Drainage Plans subject to Comments by Environmental Protection Department" provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers. The design of site drainage should follow the relevant guidelines and practices as given in the ProPECC PN 5/93. Best Management Practices (BMPs) for storm water discharge are recommended to reduce the stormwater pollution arising from the Project	To minimize impact due to stormwater discharge	Project Proponent	Project site/ Design and Operation Phase			√	WPCO; ProPECC PN 5/93
S5.8.3.2	-	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	To minimize impact due to stormwater discharge	Project Proponent	Project site/ Design and Operation Phase	√			WPCO; ProPECC PN 5/93
S5.8.3.3	-	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 in accordance with "Stormwater Drainage Manual (5th Edition)" published by DSD	To minimize impact due to stormwater discharge	Project Proponent	Project site/ Design and Operation Phase	√			WPCO; ProPECC PN 5/93
S5.8.3.4	-	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	To minimize impact due to stormwater discharge	Project Proponent	Project site/ Design and Operation Phase			√	WPCO; ProPECC PN 5/93
S5.8.3.5	-	Road gullies with standard design and silt traps and oil interceptors should be incorporated during the detailed design to remove particles present in storm water runoff	To minimize impact due to stormwater discharge	Project Proponent	Project site/ Design and Operation Phase	√			WPCO; ProPECC PN 5/93
S5.8.3.6	-	Good management measures such as regular cleaning and sweeping of road surface / open areas is suggested. The road surface / open area cleaning should also be carried out prior to occurrence of rainstorm	To minimize impact due to stormwater discharge	Project Proponent	Project site/ Design and Operation Phase			√	WPCO; ProPECC PN 5/93
S5.8.3.7	-	Manholes, as well as storm water gullies, ditches provided among the development areas should be regularly inspected and cleaned (e.g. monthly). Additional inspection and cleansing should be carried out before forecast heavy rainfall	To minimize impact due to stormwater discharge	Project Proponent	Project site/ Design and Operation Phase			√	WPCO; ProPECC PN 5/93

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						Des	C	O	
Waste Management Implications									
Construction Phase									
S6.7.1.3	S5.2	<p><u>Good Site Practices</u></p> <p>Recommendations for good site practices during the construction phase include:</p> <ul style="list-style-type: none"> 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; Training of site personnel in proper waste management and chemical waste handling procedures; Provision of sufficient waste reception/ disposal points, of a suitable vermin-proof design that minimises windblown litter; Arrangement for regular collection of waste for transport off-site and final disposal; Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed; and 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. 	To ensure proper waste management	Contractor	Construction Sites		√		Waste Disposal Ordinance (WDO), ETWB TC(W) 19/2005.
S6.7.1.4	S5.2	<p><u>Transportation of Waste</u></p> <p>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.</p>	To ensure proper waste management to control associated environmental nuisance	Contractor	Transportation Route of Waste / Construction Phase		√		DEVB TC(W) No. 6/2010
S6.7.1.5	S5.2	<p><u>Waste Reduction Measures</u></p> <p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> 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; 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; Any unused chemicals or those with remaining functional capacity shall be recycled; Maximising the use of reusable steel formwork to reduce the amount of C&D material; 	Good site practices to achieve avoidance / minimisation of waste generation	Contractor	Construction Sites		√		WDO

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		<ul style="list-style-type: none"> Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill; Adopt proper storage and site practices to minimise the potential for damage to, or contamination of, construction materials; Plan the delivery and stock of construction materials carefully to minimise the amount of surplus waste generated; Adopt pre-cast construction method instead of cast-in-situ method for construction of concrete structures as much as possible; and Minimise over ordering of concrete, mortars and cement grout by doing careful check before ordering. 							
S6.7.1.7	S5.2	<p><u>Storage of Waste</u></p> <p>Recommendations to minimise the impacts include:</p> <ul style="list-style-type: none"> Waste should be handled and stored well to ensure secure containment, thus minimising the potential of pollution; Maintain and clean storage areas routinely; Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and Different locations should be designated to stockpile each material to enhance reuse. 	To ensure proper waste management to control associated environmental nuisance	Contractor	Construction Sites		√		-
S6.7.1.8	S5.2	<p><u>Collection of Waste</u></p> <p>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:</p> <ul style="list-style-type: none"> Remove waste in timely manner; Waste collectors should only collect wastes prescribed by their permits; Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers; 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); Waste should be disposed of at licensed waste disposal facilities; and Maintain records of quantities of waste generated, recycled and disposed. 	To ensure proper waste management to control associated environmental nuisance	Contractor	Construction Sites & transportation route of waste / Construction phase		√		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 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.	To ensure proper waste management to control associated environmental nuisance	Contractor	Construction Sites		√		DEVB TCW No. 6/2010
S6.7.1.9	S5.2	The C&D materials generated should be sorted on-site into inert C&D materials and non-inert C&D waste. To minimize the impact resulting from collection and transportation of C&D materials as far as practicable, C&D waste, such as wood, plastic, steel and other metals should be reused or recycled and, as a last resort, disposed to landfill. Inert C&D materials will be recycled and reused as far as	To ensure proper waste management to control associated environmental nuisance	Contractor	Construction Sites		√		ETWB TCW No.19/2005

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		<p>practicable. With reference to Table 6.2, inert C&D materials are expected to be disposed of at Tuen Mun Area 38 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"> • 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; • Covering materials during heavy rainfall; • Locating stockpiles to minimize potential visual impacts; • 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; • Adopting GPS or equivalent system for tracking and monitoring of all dump trucks for the Project in recording their travel routings and parking locations to prohibit illegal dumping and landfilling of C&D materials; and • Minimizing land intake of stockpile areas as far as possible. 							
S6.7.1.10	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 land-based sediment is proposed to be reused on site under the Project (e.g. as backfilling materials). The land-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 ETWB TCW No. 34/2002.</p> <p>Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during excavation, transportation and disposal of sediment.</p>	To ensure proper waste management, treatment and reuse of excavated land-based sediment	Contractor	Construction Sites		√		Air Pollution Control (Construction Dust) Regulation
S6.7.1.12	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 designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).	To ensure proper waste management to control associated environmental nuisance	Contractor	Construction Sites		√		WPCO
S6.7.1.13	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.	To ensure proper waste management to control associated environmental nuisance	Contractor	Construction Sites		√		-
S6.7.1.14	S5.2	Stockpiling of contaminated sediments should be avoided as far as practicable. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed with earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiles should be completely	To ensure proper waste management to control associated environmental nuisance	Contractor	Construction Sites		√		WPCO

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		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).							
S6.7.1.15	S5.2	In order to minimize 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 (if used) shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water	To ensure proper waste management to control associated environmental nuisance	Contractor	Construction Sites & transportation route of waste / Construction phase		√		-
S6.7.1.16	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.	To ensure proper waste management	Contractor	Construction Sites & transportation route of waste / Construction phase		√		DASO, ETWB TC(W) 34/2002
S6.7.1.17	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.	To ensure proper waste management	Contractor	Construction Phase		√		ETWB TC(W) 19/2005; DEVB TC(W) 6/2010; WDO; Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S6.7.1.18	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.	To ensure proper waste management to control associated environmental nuisance	Contractor	Construction Phase		√		-
S6.7.1.19	S5.2	The recyclable component of general refuse, such as food waste, 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 set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	To ensure proper waste management	Contractor	Construction Phase		√		Public Health and Municipal Services Ordinance (Cap.132)
S6.7.1.20	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 at the sites as reminders.	To ensure proper waste management	Contractor	Construction Phase		√		-
Landfill Gas Hazard									
Construction Phase									
S8.6.1.1	S7.3.1	Safety requirements stated in Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note should be implemented properly during construction phase within the 250m consultation zone.	Minimise the risk of LFG hazards to construction workers within the 250m consultation zone.	Contractor	within the 250m consultation zone.		√		Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note

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S8.6.1.3	S7.3.2	<p>Monthly gas monitoring should also be conducted for offices, stores etc (if any) set up within areas of the Project location with GDBL and its 250m Consultation Zone. Monitoring requirements and procedures specified in Paragraphs 8.23 to 8.28 of EPD's Guidance Note are highlighted as follows:</p> <ul style="list-style-type: none"> The monitoring equipment used should be capable of measuring methane, carbon dioxide and oxygen concentrations. The equipment should be intrinsically safe and calibrated according to the manufacturer's instructions. When portable monitoring equipment is to be used, the frequency and areas to be monitored should be set down prior to commencement of the works either by the Safety Officer or by an appropriately qualified person. All measurements should be made with the monitoring tube located not more than 10 mm from the surface. A standard form, detailing the location, time of monitoring and equipment used together with the gas concentrations measured, should be used when undertaking manual monitoring to ensure that all relevant data are recorded. If methane (flammable gas) or carbon dioxide concentrations are in excess of the trigger levels or that of oxygen is below the level specified in the Emergency Management in the following sections, then evacuation should be initiated. 	Minimise the risk of LFG hazards to construction workers within the 250m consultation zone.	Contractor	within the 250m consultation zone.		√		Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note
S8.6.1.4 – S8.6.1.7	S7.3.3 - S7.3.6	<p>Periodically during ground-works construction within the 250m Consultation Zone, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring frequency and areas to be monitored should be set down prior to commencement of ground-works either by the Safety Officer or an approved and appropriately qualified person.</p> <p>Routine monitoring should be carried out in all excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces that may have been created. All measurements in excavations should be made with the extended monitoring tube located not more than 10 mm from the exposed ground surface. Monitoring should be performed properly to make sure that the area is free of LFG before any man enters into the area.</p> <p>For excavations deeper than 1m, measurements should be carried out:</p> <ul style="list-style-type: none"> at the ground surface before excavation commences; immediately before any worker enters the excavation; at the beginning of each working day for the entire period the excavation remains open; and periodically throughout the working day whilst workers are in the excavation. <p>For excavations between 300mm and 1m deep, measurements should be carried out:</p> <ul style="list-style-type: none"> directly after the excavation has been completed; and periodically whilst the excavation remains open. 	Minimise the risk of LFG hazards to construction workers within the 250m consultation zone.	Contractor	within the 250m consultation zone.		√		Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note
Operation Phase									
S8.6.2.1	S7.4.1	Works in confined spaces are controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulation of the Factories and Industrial	Minimise the risk of LFG hazards to personnel within the 250m consultation zone.	Operator	within the 250m consultation zone.			√	Factories and Industrial Undertakings (Confined Spaces)

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		Undertakings Ordinance and the Code of Practice for Safety and Health at Work in Confined Space should be followed to ensure compliance with the Regulation. Monitoring requirement and precaution measures will be formulated in risk assessment report by competent person under the Factories and Industrial Undertakings (Confined Spaces) Regulation.							Regulation of the Factories and Industrial Undertakings Ordinance
S8.6.2.2	S7.4.2	In addition, if any construction is required for the maintenance work during operational stage, the responsible party should follow the monitoring works as recommended above for construction phase.	Minimise the risk of LFG hazards to personnel within the 250m consultation zone.	Operator	within the 250m consultation zone.			√	Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note
Impact on Cultural Heritage									
Construction Phase									
S10.5.1	S8.2.2	No impacts would be anticipated to any built heritage identified. Thus, no mitigation measure would be required.	N/A	N/A	N/A	-	-	-	-
S10.5.1	S8.2.3	No archaeological impact would be anticipated. Thus, no mitigation measure would be required.	N/A	N/A	N/A	-	-	-	-
Operation Phase									
S10.5.2	S8.2.4	No adverse impact would be anticipated, and thus, no mitigation measure would be required.	N/A	N/A	N/A	-	-	-	-
Landscape and Visual									
Construction Phase									
Table 11.9 under S11.10.2	S9.2.1	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.	To preserve existing vegetation.	Contractor	Construction Sites	√	√		DEVB TC(W) No. 4/2020 – Tree Preservation and the latest Guidelines on Tree Protection during Development issued by GLTMS of DEVB
Table 11.9 under S11.10.2	S9.2.1	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. 1 no. of tree (Tree no. T1986) is recommended to be transplanted.	To transplant particular interest and high amenity value trees unavoidably affected by the works.	Contractor	Construction Sites	√	√		DEVB TC(W) Nos. 6/2015 and 4/2020 and Guidelines on Tree Transplanting by DEVB
Table 11.9 under S11.10.2	S9.2.1	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		√		-
Table 11.9 under S11.10.2	S9.2.1	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		√		-
Table 11.9	S9.2.1	The facilities and activities at works sites and areas, which include site office, temporary storage areas, temporary works etc., shall be carefully managed and	To minimise any potential adverse landscape and visual impacts.	Contractor	Construction Sites		√		-

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under S11.10.2		controlled on the height, deposition and arrangement to minimise any potential adverse landscape and visual impacts.							
Table 11.9 under S11.10.2	S9.2.1	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		✓		-
Operation Phase									
Table 11.10 under S11.10.2	S9.2.1	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 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. For trees to be compensated on slopes, the guidelines for tree planting stipulated in GEO Publication No. 1/2011 will be followed. Should the compensatory quantity ratio of 1:1 cannot be achieved, 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.	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 issued by CEDD and the Street Tree Selection Guide issued by DEVB
Table 11.10 under S11.10.2	S9.2.1	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 maximise the greening provision along the road improvement works. Use of unobtrusive colours and tones shall be proposed for all hard elements on slopes. Use of native species shall be maximised as far as possible in accordance with the Guiding Principles on Use of Native Plant Species in Public Works Projects issued by DEVB. Use of unobtrusive colours and tones shall be proposed for all hard elements on slopes.	To maximise 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 11.10 under S11.10.2	S9.2.1	Although most of the works are carried out along the existing transportation corridors, greening opportunities for roadside planting shall be maximised as far as possible. Roadside planting shall be effective visual relief to the adjacent VSRs. Planting opportunities shall be also explored at coverage fringe area underneath the proposed elevated roads to maximise the greening effect by shade-tolerant tree or shrub species. Due consideration shall be given to 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.	To maximise the greening effect by shade-tolerant tree or shrub species.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	✓	✓	✓	-
Table 11.10 under S11.10.2	S9.2.1	To re-provide the affected open space of Kwai Shun Street Playground Sitting-out Area, that will be reduced in size and close 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 11.10	S9.2.1	Sensitive design of noise barriers and noise enclosures with chromatic measures. The design and colour themes shall be coherent with the existing noise barrier design along the transportation corridors in Tsuen Wan to echo with the visual context and character of the transportation corridors. A	To echo with the visual context and character of the transportation corridors.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	✓	✓	✓	-

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under S11.10.2		<p>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.</p> <p>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 EPD and HyD 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.</p> <p>The extent and height of the noise barrier shall be sensitively designed to minimise visual impact.</p>							
Table 11.10 under S11.10.2	S9.2.1	<p>Carriageways and other highway structures proposed shall be sensitivity 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 explored in design stage. Early advice from maintenance/management parties and ACABAS shall be sought.</p>	To minimise any potential adverse landscape and visual impact.	Project Proponent / Contractor / Operator	Design / Construction and Operation Phases	√	√	√	-

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