Table C1 Implementation Schedule of Recommended Mitigation Measures – Air Quality

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Non Designated Project Element)							
S.3.5.5	Appropriate dust control measures should be implemented during the construction stage in accordance with the requirements in the Air Pollution Control (Construction Dust) Regulation. Dust control techniques should be considered to control dust to a level not exceeding the AQOs as well as the 1-hour TSP guideline level of 500 μg/m^3. These measures include, but are not limited to, the following: • Adoption of good site practices; • Avoid practices likely to raise dust level; • Frequent cleaning and damping down of stockpiles and dusty areas of the site; • Covering the exposed areas with tarpaulin; • Reducing drop height during material handling; • Regular plant maintenance to minimize exhaust emission; and • Sweep up dust and debris at the end of each shift.	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation

S.3.5.7 ~ S.3.5.8	Given each section of the works would be small scale, localised, and short-term, it would not be useful to perform dust dispersion modelling for this type of transient dust generation activities. Dust suppression and control measures stipulated in the Air Pollution Control (Construction Dust) Regulation would be applied. These measures include, but are not limited to, the following: Adoption of good site practices; Avoid practices likely to raise dust level; Frequent cleaning and damping down of stockpiles and dusty areas of the site; Covering the exposed areas with tarpaulin; Reducing drop height during material handling; Regular plant maintenance to minimize exhaust emission; and Sweep up dust and debris at the end of each shift.	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		EIA, Air Pollution Control (Construction Dust) Regulation
S.3.9.4	Based on the current design, the odour emissions from the temporary sewage treatment facilities would be ventilated to a deodourizing unit. The deodourizing unit is designed to be able to achieve an odour removal efficiency of 97%.	Odour control during operation phase	DSD and Operators		√		EIA
S.3.10.1	For the construction activities under the Project, the suitable requirements stipulated in the Air Pollution Control (Construction Dust) Regulation shall be implemented during the construction activities to minimize the dust impact. It is recommended that typical dust control methods including the following good site practices should also be incorporated during construction phase:	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Watering every hour on unpaved areas and stockpiles of dusty materials (if no tarpaulin is provided) to reduce dust emissions by 90% (e.g. watering intensity at 1.5 litre/m^2 during the first hour, subsequent application at 0.1 litre/m^2. Actual application shall depend on the site condition and weather conditions)	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		EIA, Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Use of frequent watering for particularly dusty construction areas and areas close to ASRs	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Vehicle washing facilities should be provided at every vehicle exit point	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation

S.3.10.1	Where a site boundary adjoins a road, streets or other areas accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Stockpiles of imported material kept on site shall be contained within hoarding, dampened and/or covered during dry and windy weather	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Material stockpiled alongside trenches should be covered with tarpaulins	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or spayed with water to maintain the entire surface wet during the non-working hours	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	All dusty materials shall be sprayed with water prior to any loading, unloading or transfer operation so as to keep the dusty materials wet	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Water sprays shall be used during the delivery and handling of sands aggregates and the like	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	All demolished items that may emit dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation

Construction Phase (Designated Project Element - Sewers works at Nam Chung Tsuen, Item Q.1)							
S.3.5.7 ~ S.3.5.8	Given each section of the works would be small scale, localised, and short-term, it would not be useful to perform dust dispersion modelling for this type of transient dust generation activities. Dust suppression and control measures stipulated in the Air Pollution Control (Construction Dust) Regulation would be applied. These measures include, but are not limited to, the following: Adoption of good site practices; Avoid practices likely to raise dust level; Frequent cleaning and damping down of stockpiles and dusty areas of the site; Covering the exposed areas with tarpaulin; Reducing drop height during material handling; Regular plant maintenance to minimize exhaust emission; and Sweep up dust and debris at the end of each shift.	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		EIA, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	For the construction activities under the Project, the suitable requirements stipulated in the Air Pollution Control (Construction Dust) Regulation shall be implemented during the construction activities to minimize the dust impact. It is recommended that typical dust control methods including the following good site practices should also be incorporated during construction phase:	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1*	Watering every hour on unpaved areas and stockpiles of dusty materials (if no tarpaulin is provided) to reduce dust emissions by 90% (e.g. watering intensity at 1.5 litre/m^2 during the first hour, subsequent application at 0.1 litre/m^2. Actual application shall depend on the site condition and weather conditions)	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		EIA, Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Use of frequent watering for particularly dusty construction areas and areas close to ASRs	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Vehicle washing facilities should be provided at every vehicle exit point	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation

S.3.10.1	Where a site boundary adjoins a road, streets or other areas accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Stockpiles of imported material kept on site shall be contained within hoarding, dampened and/or covered during dry and windy weather	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Material stockpiled alongside trenches should be covered with tarpaulins	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or spayed with water to maintain the entire surface wet during the non-working hours	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	All dusty materials shall be sprayed with water prior to any loading, unloading or transfer operation so as to keep the dusty materials wet	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	Water sprays shall be used during the delivery and handling of sands aggregates and the like	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.10.1	All demolished items that may emit dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition	Air Quality (fugitive dust) Control during Construction Phase	Contractors		√		Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation

Operational Phase (Non Designated Project Element)							
S.3.10.2	The enclosure provided for the odour sources of the upgraded Tai O STW and new Hang Mei SPS and Fan Kwai Tong SPS and the installation of deodorization units with 97% odour removal efficiency will reduce the potential odour impacts. Odour impacts after the upgrading works will be significantly reduced. The current design information of deodourizing units is summarized in Table 3.9 of EIA.	Odour control during operation phase	DSD and Operators	√	√	√	EIA
S.3.10.3	In addition, good housekeeping practices listed below should be followed to control odour emissions from the plant and these standard practices should be included in the plant operator manual: Screens should be cleaned regularly to remove accumulated organic debris; Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit; Grit and screened materials should be transferred to closed containers to minimize odour escape; Sludge should be frequently withdrawn from tanks to prevent the production of gases; Sludge should be transferred to closed containers; and Sludge containers should be flushed with water regularly.	Odour Control during Operation Phase	DSD and Operators	√	√	√	EIA

Legend:
D – Design, C – Construction, O - Operation
BD – Building Ordinance
ETWB TCW – Environmental and Transport Works Bureau Technical Circular
HKPSG – Hong Kong Planning Standards and Guidelines
EIAO-TM – Technical Memorandum on Environmental Impact Assessment Process
TPO – Town Planning Ordinance
WBTC – Works Bureau Technical Circulars
Remark: * means the specified measures for the DP component

Table C2 Implementation Schedule of Recommended Mitigation Measures – Noise

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Non Designated Project Element)							
S.4.4.9	Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. The following mitigation measures should be followed during the construction phase: only well-maintained plants should be operated on-site and plants should be serviced regularly during the construction works; machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plants known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs; mobile plant should be sited as far away from NSRs as possible; and material stockpiles and other structures should be effectively.	Noise control during construction	Contractors, ER		√		EIA, Contractual requirements

S.4.4.12	Use of quiet plant (PME): Generator Poker, vibratory, hand-held Vibratory Compactor Breaker, excavator mounted Excavator Crane, mobile mounted	Noise control during construction	Contractors		√		EIA, Contractual requirements
S.4.4.13 - S.4.4.14	Noise barrier in the form of site hoarding shall be used for the following PMEs where practicable: -Backhoe (mini) -Breaker, hand-held, mass>10Kg and <20Kg -Generator -Poker, vibratory hand-held -Bar Bender and cutter (electric) -Vibratory compactor -Breaker, excavator mounted -Hydraulic Vibratory Driver for driving Sheet Piling -Pilling, earth auger, auger -Hoist (electric) -Excavator -Dumper -Submersible Pump -Rock Drill, hand-held (pneumatic) -Air Compressor -Bentonite Filtering Plant -Ventilation Fan -Welding Machine -Concrete Pump -Saw, circular, wood -Winch (electric) -Drill/grinder, hand-held -Grout Mixer -Grout Pump	Noise control during construction	Contractors		√		EIA, Contractual requirements
S.4.4.14	The barrier / enclosure material's surface mass shall be in excess of 7 kg/m^2.	Noise control during construction	Contractors		√		EIA, Contractual requirements
S.4.4.18	Avoidance of undertaking different works types at the same time near the NSRs.	Noise control during construction	Contractors		√		EIA, Contractual requirements
S.4.4.20	Alternative construction method (Drill with chemical agent) shall be adopted for the breaking up of road surface of Works Type 1 (Construction of sewer (open cut method)) and Works Type 3 (Upgrading of existing sewer).	Noise control during construction	Contractors	√	√		EIA, Contractual requirements

Construction Phase (Designated Project Element - Sewers works at Nam Chung Tsuen, Item Q.1)							
S.4.4.9*	The following mitigation measures should be followed during the construction phase: only well-maintained plants should be operated on-site and plants should be serviced regularly during the construction works; machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plants known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs; mobile plant should be sited as far away from NSRs as possible; and material stockpiles and other structures should be effectively	Noise control during construction	Contractors, ER		√		EIA, Contractual requirements
S.4.4.12*	Use of quiet plant (PME): Generator Poker, vibratory, hand-held Vibratory Compactor Breaker, excavator mounted Excavator Crane, mobile mounted	Noise control during construction	Contractors		√		EIA, Contractual requirements

S.4.4.13 - S.4.4.14*	Noise barrier in the form of site hoarding shall be used for the following PMEs where practicable: -Backhoe (mini) -Breaker, hand-held, mass>10Kg and <20Kg -Generator -Poker, vibratory hand-held -Bar Bender and cutter (electric) -Vibratory compactor -Breaker, excavator mounted -Hydraulic Vibratory Driver for driving Sheet Piling -Pilling, earth auger, auger -Hoist (electric) -Excavator -Dumper -Submersible Pump -Rock Drill, hand-held (pneumatic) -Air Compressor -Bentonite Filtering Plant -Ventilation Fan -Welding Machine -Concrete Pump -Saw, circular, wood -Winch (electric) -Drill/grinder, hand-held -Grout Mixer -Grout Pump	Noise control during construction	Contractors		√		EIA, Contractual requirements
S.4.4.14*	The barrier / enclosure material's surface mass shall be in excess of 7 kg/m^2.	Noise control during construction	Contractors		√		EIA, Contractual requirements
S.4.4.18*	Avoidance of undertaking different works types at the same time near the NSRs.	Noise control during construction	Contractors		√		EIA, Contractual requirements
S.4.4.20*	Alternative construction method (Drill with chemical agent) shall be adopted for the breaking up of road surface of Works Type 1 (Construction of sewer (open cut method)) and Works Type 3 (Upgrading of existing sewer).	Noise control during construction	Contractors	√	√		EIA, Contractual requirements

Operational Phase (Non Designated Project Element)							
S.4.5.7 – S.4.5.8	The equipments are designed to be installed inside the respective building structures and a reduction of 20 dB(A) can be achieved if the building enclosure is built using suitable material such as concrete with surface density of 25 kg/m^2. The provision of acoustic louver at ventilation fans can provide significant reduction in noise levels. It is recommended that acoustic louvers be provided at the discharge point of ventilation fans with a minimum noise reduction of 10 dB(A). A 10 dB(A) reduction has also been applied to noise sources which are blocked and do not have a direct line of sight to the NSR.	Noise Control	Operator of STW/SPS			√	Annex 5 of TMEIAP NCO; Good Practices on Ventilation Systems Noise Control; Good Practices on Pumping Systems Noise Control

Legend:
D – Design, C – Construction, O - Operation
BD – Building Ordinance
ETWB TCW – Environmental and Transport Works Bureau Technical Circular
HKPSG – Hong Kong Planning Standards and Guidelines
EIAO-TM – Technical Memorandum on Environmental Impact Assessment Process
TPO – Town Planning Ordinance
WBTC – Works Bureau Technical Circulars
Remark: * means the specified measures for the DP component

Table C3 Implementation Schedule of Recommended Mitigation Measures – Water Quality

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Non Designated Project Element)							
S 5.7.9	The practices outlined in ProPECC PN 1/94 Construction Site Drainage are recommended to be adopted to minimize potential water quality impacts from construction site runoff and other construction activities. Design of mitigation measures should be submitted by the Contractor to the Engineer for approval. The mitigation measures should cover, but not limited to the following practices: -Perimeter channels are provided in the works areas to intercept runoff at site boundary prior to the commencement of any earthwork. -Surface runoff should be discharged into storm drains via adequately designed sand/ silt removal facilities; -Work programmes should be designed to minimize the size of work areas to minimize the soil exposure soil and reduce the potential for increased siltation and runoff; -Silt removal facilities, channels and manholes should be maintained and cleaned regularly to ensure the proper function; - Careful programming of the works to minimize soil excavation during the rainy season; - Earthwork surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed; - Trench excavation should be avoided in the wet season, and if necessary, it should be carried out and backfilled in short sections; - Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric during rainstorms.	Water Quality Control	Contractors		√		WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water

S 5.7.10	Good site practices should be adopted to clean the rubbish and litter on construction sites to avoid the rubbish, debris and litter from entering to nearby water bodies. It is recommended to clean the construction sites on a regular basis.	Water Quality Control	Contractors		√		WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water
S 5.7.11	The domestic sewage generated by the workforce on construction sites should be collected and discharged to the STW for proper treatment. Portable toilets should be provided by the Contractor, where necessary, to handle sewage from the workforce. The Contractor should also be responsible for the waste disposal and maintenance practices.	Water Quality Control	Contractors		√		WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water
S 5.7.12 – S 5.7.13	Illegal disposal of chemicals should be strictly prohibited. Registration to EPD as a CWP (Chemical Waste Producers) is required if chemical wastes are generated and need to be disposed of. Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance (WDO). The Code of Practice on Packaging, Labelling and Storage of Chemical Wastes published under the WDO should be used as a guideline for handing chemical wastes. Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drains, fall tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event.	Water Quality Control	Contractors		√		WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water

Construction Phase (Designated Project Element - Construction of submarine sewage outfall, Item F.6)							
S 5.7.7*	Construction of submarine outfall: - Dredging is to be undertaken using closed grab dredgers with a total production rate of 62.5 m^3/hr; - Silt curtains must be deployed with an efficiency of 75% or higher for reduction of sediment release from the dredging location while dredging works is in progress; - All vessels be sized such that adequate clearance (i.e. minimum clearance of 0.6 m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; - Excess materials be cleaned from the decks and exposed fittings of barges before the vessel is moved; - Adequate freeboard (i.e. minimum of 200 m) be maintained on barges to ensure that decks are not washed by wave action; - All barges be fitted with tight fitting seals to their bottom openings to prevent leakage of material; - Construction activities not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping ground; - Loading of barges and hoppers be controlled to prevent splashing of dredged material to the surrounding water, and barges and hoppers not be filled to a level which would cause the overflow of materials or sediment laden water during loading or transportation; and - Decks of all vessels be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.	Water Quality Control	Contractors, ER		√		EIA, Contractual requirements

Construction Phase (Designated Project Element - Sewers works at Nam Chung Tsuen, Item Q.1)							
S 5.7.9	The practices outlined in ProPECC PN 1/94 Construction Site Drainage are recommended to be adopted to minimize potential water quality impacts from construction site runoff and other construction activities. Design of mitigation measures should be submitted by the Contractor to the Engineer for approval. The mitigation measures should cover, but not limited to the following practices: -Perimeter channels are provided in the works areas to intercept runoff at site boundary prior to the commencement of any earthwork. -Surface runoff should be discharged into storm drains via adequately designed sand/ silt removal facilities; -Work programmes should be designed to minimize the size of work areas to minimize the soil exposure soil and reduce the potential for increased siltation and runoff; -Silt removal facilities, channels and manholes should be maintained and cleaned regularly to ensure the proper function; - Careful programming of the works to minimize soil excavation during the rainy season; - Earthwork surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed; - Trench excavation should be avoided in the wet season, and if necessary, it should be carried out and backfilled in short sections; - Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric during rainstorms.	Water Quality Control	Contractors		√		WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water
S 5.7.10	Good site practices should be adopted to clean the rubbish and litter on construction sites to avoid the rubbish, debris and litter from entering to nearby water bodies. It is recommended to clean the construction sites on a regular basis.	Water Quality Control	Contractors		√		WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water
S 5.7.11	The domestic sewage generated by the workforce on construction sites should be collected and discharged to the STW for proper treatment. Portable toilets should be provided by the Contractor, where necessary, to handle sewage from the workforce. The Contractor should also be responsible for the waste disposal and maintenance practices.	Water Quality Control	Contractors		√		WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water

S 5.7.12 – S 5.7.13	Illegal disposal of chemicals should be strictly prohibited. Registration to EPD as a CWP (Chemical Waste Producers) is required if chemical wastes are generated and need to be disposed of. Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance (WDO). The Code of Practice on Packaging, Labelling and Storage of Chemical Wastes published under the WDO should be used as a guideline for handing chemical wastes. Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drains, fall tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event.	Water Quality Control	Contractors		√		WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water

Operational Phase (Non Designated Project Element)							
S 5.7.14 – S 5.7.16	Emergency discharge of raw sewage from the Tai O STW would be caused by the failure of electrical power supply or treatment units. The mitigation measures should cover, but not limited to the following practices: - Relevant governmental departments, likely EPD, LCSD and DSD should be noticed by the STW operator immediately under possibility of any emergency raw sewage discharge; - The STW operators should maintain good communications with various relevant parties; - Standby facilities for the main treatment units and standby pumps, accessories/ equipment parts should be installed to avoid the occurrence of an emergency discharge. Storm Tanks would also be incorporated to provide temporary storage of flow under extremely high flow conditions and hence reduce the chance of emergency bypass. Dual power supply or standby power sources should also be implemented to minimize the possibility of power failure; - The proposed STW should be designed, managed and operated properly to minimize the chance of emergency discharge of raw sewage from the STW; - In case of damages to the submarine outfall, the treated effluent will be diverted to the emergency outfall. Off-line tanks will be implemented to provide a buffer zone for influent or effluent storage. The treated effluent from the emergency outfall will likely meet the effluent standard for this project. Thus, the emergency outfall serves as a standby unit to the submarine outfall. - Contingency plan should be developed to deal with emergency discharge during the operation of the STW, which include the following: - Locations of the sensitive receivers in vicinity of the emergency discharge; - A list of relevant governmental bodies to inform of and to ask for assistance in the event of an emergency discharge, including key contact persons and telephone numbers; - Reporting procedures required in the event of an emergency discharge; - Responsibility and procedure for clean-up of the affected water body/sensitive receivers after the emergency discharge; and - Procedures listing the most effective means in rectifying the breakdown of the pumping station to minimize the discharge duration.	Water Quality Control	DSD, ER and Contractors	√	√	√	WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water

S 5.7.18 – S 5.7.19	Nonetheless, mitigation measures are recommended below in order to reduce the possibility of emergency bypass of sewage: - A standby pump should be provided to cater for breakdown and maintenance of the duty pumps in order to avoid sewage bypass; - An alarm should be installed to signal high water levels in the wet well to the control station of the nearest manned station or plant where the operator can take immediate rectification action; - Standby power supply will be provided at the two SPSs; - Twin sewer rising mains should be provided wherever technically feasible to minimize the shutdown of SPS for pipeline repairing; and - Regular maintenance and checking of plant equipment be practiced to prevent equipment failure. An emergency overflow bypass should be provided for each of the pumping stations to channel any overflows directly, or via the storm water drainage systems, into the local receiving water, to prevent any sewage spilled into the surrounding areas, including village streets.	Water Quality Control	DSD, ER and Contractors	√	√	√	WPCO; TM –Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water

Operational Phase (Designated Project Element - Effluent reuse facilities within the Tai O STW, Item F.4)							
S 2.10.4*	A chlorine dosing system in the form of sodium hypochlorite with contact time of about 30 minutes will be installed. The remaining portion of treated effluent without chlorination will be discharged via outfall. The chlorination process will cease when its quantity is monitored to reach a pre-set level to avoid over generation of chlorinated treated effluent. The pre-set level of residual chlorine for effluent reuse is 1.5+/- 0.5mg/L, with periodic monitoring at point of use that 0.2 mg/L is maintained, with the target set point adjusted as necessary. In-house monitoring would be performed by STW Operators at the discharge point to ensure the residual chlorine level in discharged effluent is less than 1mg/L as stated in the Technical Memorandum on Standards for Effluent Discharged into Drainage and Sewerage Systems, Inland and Coastal Water (TM) for the North Western Water Control Zone and North Western Supplementary. Apart from the online monitoring and control system for the wastewater quality, regular sampling programme will be devised to further safeguard and ensure that the quality of the treated effluent is suitable for reuse. Should the treated effluent not meet the required standards for process cleaning and toilet flushing or in case of breakdown of the wastewater system, a contingency plan would be triggered. The wastewater reuse system will be shut down.	Effluent Reuse Quality Control	Operator of Tai O STW			√	WPCO; USEPA 2012 "Guidelines for Water Reuse" EIA

Legend:
D – Design, C – Construction, O - Operation
BD – Building Ordinance
ETWB TCW – Environmental and Transport Works Bureau Technical Circular
HKPSG – Hong Kong Planning Standards and Guidelines
EIAO-TM – Technical Memorandum on Environmental Impact Assessment Process
TPO – Town Planning Ordinance
WBTC – Works Bureau Technical Circulars
Remark: * means the specified measures for the DP component

Table C4 Implementation Schedule of Recommended Mitigation Measures – Waste Management Implication

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Non Designated Project Element)							
S.6.5.1	During the planning stage, waste management measures will be implemented that will aim to recover, avoid and minimise the constructed waste generated on site by utilising the following general approach: - Reduce wastage; - Reuse materials, where possible; - Recycle materials, where possible; and - Dispose of materials after all other options have been considered.	Waste management during construction	Contractors		√		-

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
6.5.2	Adverse impacts from waste management are not expected, provided that good site practices are strictly followed. Recommendations for good site practices during the construction activities include: - The Contractor shall prepare a WMP in accordance with the requirements set out in the ETWB TCW No. 19/2005, Waste Management on Construction Site, for the ER's approval. The WMP shall include monthly and yearly Waste Flow Tables that indicate the amounts of waste generated, recycled and disposed of (including final disposal site); - The Contractor's waste management practices and effectiveness shall be audited by the ER on regular basis; - The Contractor shall provide training for site staff for the concept of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling; - Sufficient waste disposal points and regular collection of waste shall be provided; - Trucks with covering for the open-box bed and enclosed container shall be used to minimise windblown litter and dust during transportation of waste; - Regular cleaning and maintenance programme for drainage systems, pumps and oil interceptors; - Separation of chemical wastes for special handling and appropriate treatment at a Chemical Waste Treatment Facility; - Encourage collection of aluminium cans, paper and plastic bottles by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the workforce; - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - A recording system for the amount of wastes generated, recycled and disposed (including disposal sites) should be proposed; and - Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	Waste management during construction	ER and Contractors		√		ETWB TCW No. 19/2005, Waste Management on Construction Sites; Waste Disposal Ordinance; and Waste Disposal (Chemical Waste) (General) Regulation

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.6.5.3 to S.6.5.6	C&D Materials With good site management it can reduce the over-ordering of C&D materials such as concrete and mortars. Alternatives such as steel frameworks and plastic fencing can be considered to increase the chances for reuse. In order to minimise the potential environmental impacts resulting from collection and transportation of C&D materials for off-site disposal, the excavated materials comprising fill materials should be reused on-site as backfilling 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 of to landfill sites. A suitable area should be designated within the site for temporary stockpiling of C&D materials and to facilitate the sorting process. In order to monitor the disposal of C&D materials at the designated public fill reception facility and landfill and to control fly-tipping, a trip ticket system should be included. Reference can be made to Development Bureau TC(W) No. 6/2010 "Trip Ticket System for Disposal of Construction and Demolition Materials" for details. The C&D materials to be disposed of at public filling reception facilities shall be materials only consist of brick, concrete, cement plaster, soil and inert building debris. The materials shall be free from plastics, chemical waste, industrial metals and other materials that are considered unsuitable at the facility.	Waste management during construction	Contractors		√		ETWB TCW No 6/2010, Waste Disposal Ordinance
S.6.5.7	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D materials. A reputable waste collector should be employed by the Contractor to remove general refuse from the site regularly, separately from C&D materials. An enclosed and covered area is preferred to reduce the occurrence of wind-blown light materials. In addition, a sufficient number of enclosed bins shall be provided on site for containment of general refuse to prevent visual impacts and nuisance to the sensitive surrounding.	Waste management during construction	Contractors		√		Waste Disposal Ordinance

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.6.5.8 and S.6.5.9	Chemical Waste For the disposal of chemical wastes produced at the construction site, the Contractor is required to register with the EPD as a CWP and to follow the requirements stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used. Appropriate labels should be securely attached on each chemical waste container indicating the chemical characteristics of the chemical waste, such as explosives, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall also use a licensed waste collector engaged to transport and dispose of the chemical wastes in accordance with the Waste Disposal (Chemical Waste) (General) Regulation	Waste management during construction	Contractors		√	√	Waste Disposal (Chemical Waste) (General) Regulation
S.6.5.10	Sewage Chemical toilets to be provided on-site shall be regularly cleaned and the night-soil collected and transported by a licensed contractor to a Government Sewage Treatment Works facility for disposal	Waste management during construction	Contractors		√		Waste Disposal Ordinance

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.6.5.11 and S.6.5.12	Dredged Marine Sediment Dredged marine sediments to be disposed of at different marine disposal sites should be stored separately to avoid cross contaminated. To minimise potential odour nuisance, covers should be provided for the storage tank or barges. Different category of marine sediments should be disposed of at the designated marine designated sites. The testing results and sediment quantities for each category presented in this report are for EIA purposes only. For allocation of sediment disposal sites and application of marine dumping permit, another proposal for sampling and chemical testing of the sediment will be prepared and submitted to the EPD for approval following the procedures in ETWB TC(W) No. 34/2002. The approved detailed sampling and chemical testing will be carried out prior to the commencement of the dredging activities to confirm the sediment disposal methods. The contamination levels of the sediment to be dredged will be analysed and recorded. After carrying out the sampling and testing, a SQR will be prepared for EPD approval as required under the DASO to agree and confirm the quantities and extent of the contamination of the sediments prior to the dredging works. The SQR will include the sampling details, the chemical testing results, quality control records, proposed classification and delineation of sediment according to the requirements of ETWB TC(W) No. 34/2002.	Waste management during construction	Contractors		√		ETWB TC(W) No. 34/2002, Dumping at Sea Ordinance

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Designated Project Element - Construction of submarine sewage outfall, Item F.6)							
S.6.5.7	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D materials. A reputable waste collector should be employed by the Contractor to remove general refuse from the site regularly, separately from C&D materials. An enclosed and covered area is preferred to reduce the occurrence of wind-blown light materials. In addition, a sufficient number of enclosed bins shall be provided on site for containment of general refuse to prevent visual impacts and nuisance to the sensitive surrounding.	Waste management during construction	Contractors		√		Waste Disposal Ordinance
S.6.5.8 and S.6.5.9	Chemical Waste For the disposal of chemical wastes produced at the construction site, the Contractor is required to register with the EPD as a CWP and to follow the requirements stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used. Appropriate labels should be securely attached on each chemical waste container indicating the chemical characteristics of the chemical waste, such as explosives, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall also use a licensed waste collector engaged to transport and dispose of the chemical wastes in accordance with the Waste Disposal (Chemical Waste) (General) Regulation	Waste management during construction	Contractors		√	√	Waste Disposal (Chemical Waste) (General) Regulation

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.6.5.11 and S.6.5.12	Dredged Marine Sediment Dredged marine sediments to be disposed of at different marine disposal sites should be stored separately to avoid cross contaminated. To minimise potential odour nuisance, covers should be provided for the storage tank or barges. Different category of marine sediments should be disposed of at the designated marine designated sites. The testing results and sediment quantities for each category presented in this report are for EIA purposes only. For allocation of sediment disposal sites and application of marine dumping permit, another proposal for sampling and chemical testing of the sediment will be prepared and submitted to the EPD for approval following the procedures in ETWB TC(W) No. 34/2002. The approved detailed sampling and chemical testing will be carried out prior to the commencement of the dredging activities to confirm the sediment disposal methods. The contamination levels of the sediment to be dredged will be analysed and recorded. After carrying out the sampling and testing, a SQR will be prepared for EPD approval as required under the DASO to agree and confirm the quantities and extent of the contamination of the sediments prior to the dredging works. The SQR will include the sampling details, the chemical testing results, quality control records, proposed classification and delineation of sediment according to the requirements of ETWB TC(W) No. 34/2002.	Waste management during construction	Contractors		√		ETWB TC(W) No. 34/2002, Dumping at Sea Ordinance
Construction Phase (Designated Project Element - Sewers works at Nam Chung Tsuen, Item Q.1)							
S.6.5.1	During the planning stage, waste management measures will be implemented that will aim to recover, avoid and minimise the constructed waste generated on site by utilising the following general approach: - Reduce wastage; - Reuse materials, where possible; - Recycle materials, where possible; and - Dispose of materials after all other options have been considered.	Waste management during construction	Contractors		√		-

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
6.5.2	Adverse impacts from waste management are not expected, provided that good site practices are strictly followed. Recommendations for good site practices during the construction activities include: - The Contractor shall prepare a WMP in accordance with the requirements set out in the ETWB TCW No. 19/2005, Waste Management on Construction Site, for the ER's approval. The WMP shall include monthly and yearly Waste Flow Tables that indicate the amounts of waste generated, recycled and disposed of (including final disposal site); - The Contractor's waste management practices and effectiveness shall be audited by the ER on regular basis; - The Contractor shall provide training for site staff for the concept of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling; - Sufficient waste disposal points and regular collection of waste shall be provided; - Trucks with covering for the open-box bed and enclosed container shall be used to minimise windblown litter and dust during transportation of waste; - Regular cleaning and maintenance programme for drainage systems, pumps and oil interceptors; - Separation of chemical wastes for special handling and appropriate treatment at a Chemical Waste Treatment Facility; - Encourage collection of aluminium cans, paper and plastic bottles by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the workforce; - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - A recording system for the amount of wastes generated, recycled and disposed (including disposal sites) should be proposed; and - Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	Waste management during construction	ER and Contractors		√		ETWB TCW No. 19/2005, Waste Management on Construction Sites; Waste Disposal Ordinance; and Waste Disposal (Chemical Waste) (General) Regulation

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.6.5.3 to S.6.5.6	C&D Materials With good site management it can reduce the over-ordering of C&D materials such as concrete and mortars. Alternatives such as steel frameworks and plastic fencing can be considered to increase the chances for reuse. In order to minimise the potential environmental impacts resulting from collection and transportation of C&D materials for off-site disposal, the excavated materials comprising fill materials should be reused on-site as backfilling 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 of to landfill sites. A suitable area should be designated within the site for temporary stockpiling of C&D materials and to facilitate the sorting process. In order to monitor the disposal of C&D materials at the designated public fill reception facility and landfill and to control fly-tipping, a trip ticket system should be included. Reference can be made to Development Bureau TC(W) No. 6/2010 "Trip Ticket System for Disposal of Construction and Demolition Materials" for details. The C&D materials to be disposed of at public filling reception facilities shall be materials only consist of brick, concrete, cement plaster, soil and inert building debris. The materials shall be free from plastics, chemical waste, industrial metals and other materials that are considered unsuitable at the facility.	Waste management during construction	Contractors		√		ETWB TCW No 6/2010, Waste Disposal Ordinance
S.6.5.7	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D materials. A reputable waste collector should be employed by the Contractor to remove general refuse from the site regularly, separately from C&D materials. An enclosed and covered area is preferred to reduce the occurrence of wind-blown light materials. In addition, a sufficient number of enclosed bins shall be provided on site for containment of general refuse to prevent visual impacts and nuisance to the sensitive surrounding.	Waste management during construction	Contractors		√		Waste Disposal Ordinance

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.6.5.8 and S.6.5.9	Chemical Waste For the disposal of chemical wastes produced at the construction site, the Contractor is required to register with the EPD as a CWP and to follow the requirements stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used. Appropriate labels should be securely attached on each chemical waste container indicating the chemical characteristics of the chemical waste, such as explosives, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall also use a licensed waste collector engaged to transport and dispose of the chemical wastes in accordance with the Waste Disposal (Chemical Waste) (General) Regulation	Waste management during construction	Contractors		√	√	Waste Disposal (Chemical Waste) (General) Regulation
S.6.5.10	Sewage Chemical toilets to be provided on-site shall be regularly cleaned and the night-soil collected and transported by a licensed contractor to a Government Sewage Treatment Works facility for disposal	Waste management during construction	Contractors		√		Waste Disposal Ordinance
Operational Phase (Non Designated Project Element)							
S.6.5.13	The major waste generated during the operational phase will be screenings, silt and debris, grits and dewatered sludge. The screenings, silt and debris and grits are considered similar in nature to general refuse and will be disposed of at landfill sites regularly by a reputable waste collector to reduce pest, odour and litter impacts. The dewatered sludge will be disposal of at Sludge Treatment Facilities.	Waste management	DSD			√	Waste Disposal Ordinance
S.6.5.14	For chemical waste generated during the operational phase, the handling procedures and disposal method are the same as those presented in Section 6.5.8 of EIA.	Waste management	DSD			√	Waste Disposal (Chemical Waste) (General) Regulation

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TPO – Town Planning Ordinance
WBTC – Works Bureau Technical Circulars
Remark: * means the specified measures for the DP component

Table C5 Implementation Schedule of Recommended Mitigation Measures – Ecology

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Non Designated Project Element)							
S.8.8.1	Tree loss in affected plantation will be minimized. The two trees affected by the construction works of Hang Mei SPS will be transplanted. Impact to watercourse habitats will be avoided by using trenchless method. Works area in affected terrestrial habitats will be reinstated after completion of construction works	To minimize environmental impacts on terrestrial habitats	Contractor		√		-
S.8.8.6	Good Site Practices – The integrity and effectiveness of all silt curtains should be regularly inspected. Effluent monitoring should be incorporated to make sure that the discharged effluent from construction sites meets the effluent discharge guidelines. Good site practice and precautionary measures will also be implemented to avoid the potential impact due to site runoff. The potential impact to terrestrial habitats surrounding the works areas due to noise and dust can also be minimised by implementation of good site practice.	To minimize environmental impacts on marine life	Contractor		√		-
S.8.8.7	Strict enforcement on no-dumping – Restrictions prohibiting dumping of rubbish, food, oil, or chemicals should be strictly enforced. This should also be covered in the contractor briefings.	To minimize environmental impacts on marine life	Contractor		√		-
S.8.8.9	Erection of Hoardings – Hoardings of 3m tall will be erected along the works area of Hang Mei SPS during construction phase. Given this measure, the potential impact to woodland and associated wildlife would be minimized.	To minimize the environmental impact to woodland and associated wildlife	Contractor		√		-
S.8.8.10	Uses of quiet machinery/construction method during the construction phase – Construction method / machinery producing less noise will be employed in order to minimise the potential impact of construction noise	To minimize the environmental impact to woodland and associated wildlife	Contractor		√		-
S.5.7	Water quality mitigation measures as required in the Water Quality section	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		EIAO-TM, WPCO and its regulations.

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.3, 4, 5 & 6	Good site practices	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		EIAO-TM, APCO, NCO, WPCO and its regulations
Construction Phase (Designated Project Element - Construction of submarine sewage outfall, Item F.6)							
S.8.8.3	Mitigation measures for marine noise impact, i.e. decoupling of noisy equipment on vessels should be applied in present project, and the noise impact would be controlled to acceptable level. Establishment of dolphin exclusion zone and implementation of Dolphin Watching Plan should also be applied. Dolphin exclusion zone of 250m radius should be implemented in the reclamation and dredging sites during the installation of the perimeter silt curtains and any re-deployment of the perimeter silt curtains. The perimeter silt curtain installation or re-deployment works should not be commenced until a 30 minute of no dolphin sighting is made within the exclusion zone and will be suspended when any Chinese White Dolphin (CWD) is found within the exclusion zone. Once the perimeter silt curtains are installed or re-deployed, the dredging and filling works would be conducted inside the silt curtains and a dolphin exclusion zone is no longer required. Subsequently, a dolphin watching plan will then be performed. The plan would include regular inspection of the silt curtains, visual inspection of the waters surrounded by the curtains, and an action plan should be devised to cope with any unpredicted incidents such as the case that a dolphin is found within the waters surrounded by the silt curtains. The details of the dolphin exclusion zone and dolphin watching plan for works areas should be included in the EM&A programme.	To protect the acoustically sensitive Chinese White Dolphin	Contractor		√		-

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.8.8.4	The potential impacts of marine traffic disturbance or collision risk due to the work-related vessel traffic flow during construction phase are also considered. It is recommended that similar measures which are adopted in other Projects in the western Hong Kong waters to mitigate marine traffic disturbance on CWD, such as speed limits (e.g. 10 knots) and regular routes (to be determined during the construction stage by the environmental team), should be applied. The magnitude of any marine traffic disturbance impact could be controlled to acceptable level	To prevent collision of Dolphin	Contractor		√		-
S.8.8.5	Reduce re-suspension of sediments – Any significant changes in water quality or turbidity should be avoided. This could be mitigated through construction methods. This includes measures such as using closed-grab dredging, and using silt curtains around the work areas. To conclude, the number of concurrent dredging/filling work fronts should be limited, closed-grab dredging and silt curtains should be used, and the seawall should be constructed prior to the filling works.	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		-
S.8.8.6	Good Site Practices – The integrity and effectiveness of all silt curtains should be regularly inspected. Effluent monitoring should be incorporated to make sure that the discharged effluent from construction sites meets the effluent discharge guidelines. Good site practice and precautionary measures will also be implemented to avoid the potential impact due to site runoff. The potential impact to terrestrial habitats surrounding the works areas due to noise and dust can also be minimised by implementation of good site practice.	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		-
S.8.8.7	Strict enforcement on no-dumping – Restrictions prohibiting dumping of rubbish, food, oil, or chemicals should be strictly enforced. This should also be covered in the contractor briefings.	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		-

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.8.8.8	Spill response plan - There will also be a spill response plan if vessels operating in the works areas will be transporting oil or other hazardous chemicals. The oil spill response plan will have specific provisions for protecting marine ecological resources. Given these measures, the marine ecosystem in the area would be protected	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		-
S.5.7	Water quality mitigation measures as required in the Water Quality section	To minimize environmental impacts on marine and coastal fauna in the nearby waters.	Contractor		√		EIAO-TM, WPCO and its regulations.
S.3, 4, 5 & 6	Good site practices	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		EIAO-TM, APCO, NCO, WPCO and its regulations
Construction Phase (Designated Project Element - Sewers works at Nam Chung Tsuen, Item Q.1)							
S.8.8.1	Tree loss in affected plantation will be minimized. The two trees affected by the construction works of Hang Mei SPS will be transplanted. Impact to watercourse habitats will be avoided by using trenchless method. Works area in affected terrestrial habitats will be reinstated after completion of construction works	To minimize environmental impacts on terrestrial habitats	Contractor		√		-
S.8.8.6	Good Site Practices – The integrity and effectiveness of all silt curtains should be regularly inspected. Effluent monitoring should be incorporated to make sure that the discharged effluent from construction sites meets the effluent discharge guidelines. Good site practice and precautionary measures will also be implemented to avoid the potential impact due to site runoff. The potential impact to terrestrial habitats surrounding the works areas due to noise and dust can also be minimised by implementation of good site practice.	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		-

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.8.8.7	Strict enforcement on no-dumping – Restrictions prohibiting dumping of rubbish, food, oil, or chemicals should be strictly enforced. This should also be covered in the contractor briefings.	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		-
S.8.8.10	Uses of quiet machinery/construction method during the construction phase – Construction method / machinery producing less noise will be employed in order to minimise the potential impact of construction noise	To minimize the environmental impact to woodland and associated wildlife	Contractor		√		-
S.3, 4, 5 & 6	Good site practices	To minimize environmental impacts and potential ecological impacts within and near the construction site	Contractor		√		EIAO-TM, APCO, NCO, WPCO and its regulations
Operational Phase							
N/A	None specific	N/A	N/A	N/A	N/A	None specific	N/A

Legend:
D – Design, C – Construction, O - Operation
BD – Building Ordinance
ETWB TCW – Environmental and Transport Works Bureau Technical Circular
HKPSG – Hong Kong Planning Standards and Guidelines
EIAO-TM – Technical Memorandum on Environmental Impact Assessment Process
TPO – Town Planning Ordinance
WBTC – Works Bureau Technical Circulars
DP-1– Construction of submarine sewage outfall (Item F.6)
DP-2 – Effluent reuse facilities within the Tai O STW (Item F.4)
DP-3 – Sewers works at Nam Chung Tsuen (Item Q.1)
Remark: * means the specified measures for the DP component

Table C6 Implementation Schedule of Recommended Mitigation Measures – Fisheries

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Non Designated Project Element)							
S.5.7	Marine water quality mitigation measures as required in the Water Quality section	To protect fisheries resources	Contractor		√		EIAO-TM, WPCO and its regulations
S. 5 & 6	Good site practices	To protect fisheries resources	Contractor		√		EIAO-TM, APCO, NCO, WPCO and its regulations
Construction Phase (Designated Project Element - Construction of submarine sewage outfall, Item F.6)							
S.5.7	Marine water quality mitigation measures as required in the Water Quality section	To protect fisheries resources	Contractor		√		EIAO-TM, WPCO and its regulations
S., 5 & 6	Good site practices	To protect fisheries resources	Contractor		√		EIAO-TM, APCO, NCO, WPCO and its regulations
Construction Phase (Designated Project Element - Sewers works at Nam Chung Tsuen, Item Q.1)							
S. 5 & 6	Good site practicesss	To protect fisheries resources	Contractor		√		EIAO-TM, APCO, NCO, WPCO and its regulations
Operational Phase							
N/A	None specific	N/A	N/A	N/A	N/A	None specific	N/A

Legend:
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Table C7 Implementation Schedule of Recommended Mitigation Measures - Cultural Heritage

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Non Designated Project Element)							
S.10.5.1 to S.10.5.4	An Archaeological Watching Brief during construction phase was recommended for areas with archaeological potential within the villages. In order to create a specification tailored to this Project, it was necessary to devise a means of calculating the numbers of Archaeological Watching Brief visits per section of alignment, where 'section' can nominally be taken to mean a length of sewer alignment between two manholes. Past experience has shown that engineering work of this kind tends to be conducted on the basis of short sections of alignment between two manholes. Although the lengths of alignment between manholes vary somewhat, this is nevertheless a meaningful basis upon which to decide the monitoring schedule. With this in mind, four levels of Archaeological Watching Brief frequency were matched to four different levels of archaeological potential associated with undisturbed areas of archaeological potential and areas of high to low archaeological potential but disturbed by utilities. The suggested visit frequencies for the four categories are provided in Table 10-2 of EIA. Each monitoring visit should nominally be of a day's duration and would typically involve observation, finds collection and recording as specified in Appendix 10.4 of EIA. Should significant findings be made, additional archaeological resources will be provided in the form of additional/extended visits to ensure that appropriate recording and retrieval is accomplished prior to the continuation of engineering groundworks	Identification, retrieval and recording of potential archaeological material and deposits	DSD and Contractors		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment
S.10.5.5	Archaeological Watching Brief Scope The methodology for conducting an Archaeological Watching Brief programme is appended in Appendix 10.4 of EIA	Identification, retrieval and recording of potential archaeological material and deposits	DSD and Contractors		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.10.5.11 – S.10.5.12	Condition Survey (CS) A condition survey must be carried out by qualified building surveyor or engineer in advance of works for Graded Historic Buildings and structures and Nil Graded heritage structures that may be affected by ground borne vibration. The Condition Survey Report should contain descriptions of the structure, identification of fragile elements, an appraisal of the condition and working methods for any proposed monitoring and precautionary measures that are recommended. The condition survey report for Graded Historic Buildings must be submitted to AMO for comment before construction activities commence. The location of proposed monitoring point in the building should avoid damaging the historic fabric and approved by the owner. The contractor must implement the approved monitoring and precautionary measures.	Identification of heritage buildings and structures that may be damaged by ground borne vibration.	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment
S.10.5.13 – S.10.5.14	Vibration and Settlement Monitoring (VM) Indirect impacts from construction related activities, such as concrete breaking and excavation works may occur if conducted in the vicinity of built heritage structures. This distance that required attention will be defined as 20 m from the proposed works area. Vibration and settlement monitoring should be undertaken during the construction works to ensure that safe levels of vibration and settlement are not exceeded. A maximum level of 5 mm/s for Grade 1, 7.5 mm/s for Grades 2 and 3 Historic Buildings and 15 mm/s for Nil Graded heritage structures should be adopted. The Alert/Alarm/Action limits for settlement shall be 6mm, 8mm and 10mm respectively. It should be noted that the condition survey report should highlight if the limit should be lowered after the detailed study of the condition of the building. A monitoring schedule should be included in the condition survey report. The location of any monitoring equipment in the building must be approved by the owner before installation and should avoid damaging the historic fabric.	Prevention of damage from ground borne vibration during the construction phase	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment
S.10.5.15	Provision of Buffer Zones (BZ) A buffer zone should be provided to separate the building from the construction works. The buffer zone should be clearly marked out by temporary fencing. The buffer zone should be made at least 1 m from the proposed works or if this is not possible as large as the site restrictions allow.	Prevention of damage to heritage structures from contact with equipment and machinery during the construction works	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.10.5.16	Provision of Protective Covering (PC) Protective covering in the form of plastic sheeting on a movable fence should be provided for external walls and surfaces of historical buildings and structures in close proximity to works areas, i.e. areas where a buffer zone alone cannot provide protection from equipment and works activities.	Prevention of damage to heritage structures from contact with equipment and machinery during the construction works	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment
S.10.5.17	Safe Public Access (SPA) Any proposed works in close proximity to buildings or structures used by the public for religious, ritual or funerary purposes, such as shrines, ancestral halls, temples and graves have the potential to create an unsafe environment for members of the public. The contractor must ensure that safe public access is maintained, through provision of clearly marked paths separated from the construction works	To ensure the safety of members of the public when using heritage structures during the construction works	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Designated Project Element - Sewers works at Nam Chung Tsuen, Item Q.1)							
S.10.5.1 to S.10.5.4	An Archaeological Watching Brief during construction phase was recommended for areas with archaeological potential within the villages. In order to create a specification tailored to this Project, it was necessary to devise a means of calculating the numbers of Archaeological Watching Brief visits per section of alignment, where 'section' can nominally be taken to mean a length of sewer alignment between two manholes. Past experience has shown that engineering work of this kind tends to be conducted on the basis of short sections of alignment between two manholes. Although the lengths of alignment between manholes vary somewhat, this is nevertheless a meaningful basis upon which to decide the monitoring schedule. With this in mind, four levels of Archaeological Watching Brief frequency were matched to four different levels of archaeological potential associated with undisturbed areas of archaeological potential and areas of high to low archaeological potential but disturbed by utilities. The suggested visit frequencies for the four categories are provided in Table 10-2 of EIA. Each monitoring visit should nominally be of a day's duration and would typically involve observation, finds collection and recording as specified in Appendix 10.4 of EIA. Should significant findings be made, additional archaeological resources will be provided in the form of additional/extended visits to ensure that appropriate recording and retrieval is accomplished prior to the continuation of engineering groundworks	Identification, retrieval and recording of potential archaeological material and deposits	DSD and Contractors		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment
S.10.5.5	Archaeological Watching Brief Scope The methodology for conducting an Archaeological Watching Brief programme is appended in Appendix 10.4 of EIA	Identification, retrieval and recording of potential archaeological material and deposits	DSD and Contractors		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.10.5.11 – S.10.5.12	Condition Survey (CS) A condition survey must be carried out by qualified building surveyor or engineer in advance of works for Graded Historic Buildings and structures and Nil Graded heritage structures that may be affected by ground borne vibration. The Condition Survey Report should contain descriptions of the structure, identification of fragile elements, an appraisal of the condition and working methods for any proposed monitoring and precautionary measures that are recommended. The condition survey report for Graded Historic Buildings must be submitted to AMO for comment before construction activities commence. The location of proposed monitoring point in the building should avoid damaging the historic fabric and approved by the owner. The contractor must implement the approved monitoring and precautionary measures.	Identification of heritage buildings and structures that may be damaged by ground borne vibration.	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment
S.10.5.13 – S.10.5.14	Vibration and Settlement Monitoring (VM) Indirect impacts from construction related activities, such as concrete breaking and excavation works may occur if conducted in the vicinity of built heritage structures. This distance that required attention will be defined as 20 m from the proposed works area. Vibration and settlement monitoring should be undertaken during the construction works to ensure that safe levels of vibration and settlement are not exceeded. A maximum level of 5 mm/s for Grade 1, 7.5 mm/s for Grades 2 and 3 Historic Buildings and 15 mm/s for Nil Graded heritage structures should be adopted. The Alert/Alarm/Action limits for settlement shall be 6mm, 8mm and 10mm respectively. It should be noted that the condition survey report should highlight if the limit should be lowered after the detailed study of the condition of the building. A monitoring schedule should be included in the condition survey report. The location of any monitoring equipment in the building must be approved by the owner before installation and should avoid damaging the historic fabric.	Prevention of damage from ground borne vibration during the construction phase	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment
S.10.5.15	Provision of Buffer Zones (BZ) A buffer zone should be provided to separate the building from the construction works. The buffer zone should be clearly marked out by temporary fencing. The buffer zone should be made at least 1 m from the proposed works or if this is not possible as large as the site restrictions allow.	Prevention of damage to heritage structures from contact with equipment and machinery during the construction works	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
S.10.5.16	Provision of Protective Covering (PC) Protective covering in the form of plastic sheeting on a movable fence should be provided for external walls and surfaces of historical buildings and structures in close proximity to works areas, i.e. areas where a buffer zone alone cannot provide protection from equipment and works activities.	Prevention of damage to heritage structures from contact with equipment and machinery during the construction works	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment
S.10.5.17	Safe Public Access (SPA) Any proposed works in close proximity to buildings or structures used by the public for religious, ritual or funerary purposes, such as shrines, ancestral halls, temples and graves have the potential to create an unsafe environment for members of the public. The contractor must ensure that safe public access is maintained, through provision of clearly marked paths separated from the construction works	To ensure the safety of members of the public when using heritage structures during the construction works	Contractor		√		EIAO-TM/ AMO/ Guidelines for Cultural Heritage Impact Assessment
Operational Phase							
N/A	None specific	N/A	N/A	N/A	N/A	None specific	N/A

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Table C8 Implementation Schedule of Recommended Mitigation Measures - Landscape & Visual

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Non Designated Project Element)							
Table 11.17	CM-1 Visual Screen/Hoarding Decorative hoarding or boundary fence for construction sites shall be considered, and designed to be compatible to the surroundings.	To minimize the potential visual impacts	Contractors	√	√		N/A
Table 11.17	CM-2 Protection to Existing Trees within Works Areas All existing trees which are not in direct conflict with the proposed works will be retained. The existing trees proposed to be retained shall be properly maintained and protected by means of fencing to prevent vehicular or pedestrian intrusion that may potentially damage tree canopies, trunks and root zones. Detailed tree protection specifications shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and tree monitoring system. For trees with high preservation value, individual tree assessments and continuous tree monitoring reports shall be provided by a certified Arborist, Landscape Architect or related professional during construction. All retained trees shall be recorded photographically at the commencement of contract. Root pruning to the retained trees should be prohibited. Retained trees should be well-preserved by setting up a tree protection zone throughout the construction period for protecting the retained trees from damages. To maximize protection to existing trees and ground vegetation, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should close monitor and restrict the site working staff not to enter the “no-intrusion zone”, even for non-direct construction activities and storage of equipment.	Landscape mitigation measures	Contractors	√	√		EIA, DEVB TCW No. 7/2015, ‘Guidelines on Tree Preservation during Development’ issued by GLTM Section, DEVB

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Table 11.17	CM-3 Tree Transplanting Existing trees to be affected shall be directly transplanted to the proposed tree receiving sites. The construction programme should also allow sufficient time for root pruning and root ball preparation prior to transplanting, if necessary, and transplanting operations to be carried out in planting season. Tree pruning such as topping, lion tailing would be prohibited as far as possible. Also, frequent keep watering would be necessary for transplanting trees. The proposed tree preservation measures during construction would be carried out and approved by the competent persons. Compensatory planting would be implemented to fully compensate for the tree and vegetation loss if transplanting of trees is considered not feasible or not preferable. Early preparation of trees to be transplanted shall be undertaken to increase their likely survival rate following transplanting.	Landscape mitigation measures	Contractors	√	√	√	EIA, DEVB TCW No. 7/2015, 'Guidelines on Tree Transplanting' issued by GLTM Section, DEVB
Table 11.17	CM-4 Construction Light Security floodlight for construction areas shall be controlled, such as equipped with adjustable shield, frosted diffusers and reflective covers, at night to avoid excessive glare to the nearby areas and residents. Other security measures shall also be considered to minimize the visual impacts by construction light.	To reduce the night-time glare effect to the surrounding environs.	Contractors		√		EIA
Table 11.17	CM-5 Dust and Erosion Control for Exposed Soil Excavation works and demolition of existing building blocks shall be well planned with precautions to suppress dust. Exposed soil shall be covered or watered often. Areas that are expected to be left with bare soul for a long period of time after excavation shall be properly covered with suitable protective fabric. Suitable drainage shall be provided around construction sites to avoid discharge of contaminants and sediments into sensitive water-based habitats.	To minimize the disturbance to existing landscape resources and minimize the impacts on the visual amenity of the area	Contractors		√		EIA
Table 11.17	CM-6 Reinstatement of Works Areas The affected works areas including affected landscape shall be properly reinstated to the satisfaction of relevant government departments.	Landscape mitigation measures	Contractors		√		EIA

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Construction Phase (Designated Project Element - Sewers works at Nam Chung Tsuen, Item Q.1)							
Table 11.17	CM-1 Visual Screen/Hoarding Decorative hoarding or boundary fence for construction sites shall be considered, and designed to be compatible to the surroundings.	To minimize the potential visual impacts	Contractors		√		N/A
Table 11.17	CM-2 Protection to Existing Trees within Works Areas All existing trees which are not in direct conflict with the proposed works will be retained. The existing trees proposed to be retained shall be properly maintained and protected by means of fencing to prevent vehicular or pedestrian intrusion that may potentially damage tree canopies, trunks and root zones. Detailed tree protection specifications shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and tree monitoring system. For trees with high preservation value, individual tree assessments and continuous tree monitoring reports shall be provided by a certified Arborist, Landscape Architect or related professional during construction. All retained trees shall be recorded photographically at the commencement of contract. Root pruning to the retained trees should be prohibited. Retained trees should be well-preserved by setting up a tree protection zone throughout the construction period for protecting the retained trees from damages. To maximize protection to existing trees and ground vegetation, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should close monitor and restrict the site working staff not to enter the "no-intrusion zone", even for non-direct construction activities and storage of equipment.	Landscape mitigation measures	Contractors	√	√		EIA, DEVB TCW No. 7/2015, 'Guidelines on Tree Preservation during Development' issued by GLTM Section, DEVB
Table 11.17	CM-4 Construction Light Security floodlight for construction areas shall be controlled, such as equipped with adjustable shield, frosted diffusers and reflective covers, at night to avoid excessive glare to the nearby areas and residents. Other security measures shall also be considered to minimize the visual impacts by construction light.	To reduce the night-time glare effect to the surrounding environs.	Contractors		√		EIA

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
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Table 11.17	CM-5 Dust and Erosion Control for Exposed Soil Excavation works and demolition of existing building blocks shall be well planned with precautions to suppress dust. Exposed soil shall be covered or watered often. Areas that are expected to be left with bare soul for a long period of time after excavation shall be properly covered with suitable protective fabric. Suitable drainage shall be provided around construction sites to avoid discharge of contaminants and sediments into sensitive water-based habitats.	To minimize the disturbance to existing landscape resources and minimize the impacts on the visual amenity of the area	Contractors		√		EIA
Table 11.17	CM-6 Reinstatement of Works Areas The affected works areas including affected landscape shall be properly reinstated to the satisfaction of relevant government departments.	Landscape mitigation measures	Contractors		√		EIA
Operational Phase (Non Designated Project Element)							
Table 11.18	OM-1 Architectural and Landscape Design The appearance of the proposed structures shall be properly designed, including a careful selection of material, colour and texture, so as to fit into the existing suburban, natural to semi-natural surroundings. The aesthetic design of the proposed structures will follow the requirements in the Guidelines on Aesthetic Design of Pumping Station Buildings and submitted to Vetting Committee on Aesthetic Design of Pumping Station Buildings (VCAB) for approval in accordance with DSD TC No. 9/2006, and circulated to ASD for comment in accordance with ETWB TCW No. 8/2005. Sufficient planting will be provided around the boundary fence of the proposed buildings for screening. Buffer planting will also be provided. All mitigation measures should also be properly annotated on the photomontages.	To ensure the proposals are integrated with the existing landscape and visual content, and avoid cluster effect.	Project Engineer and Landscape Architect	√		√	EIA, DSD TC No. 9/2006, ETWB TCW No. 8/2005

EIA Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures			What requirements or standards for the measures to achieve?
				D	C	O	
Table 11.18	OM-2 Establishment Period A 12-month establishment period for the soft landscape works shall be allowed in the main contract for contractor to carry out routine horticultural operations, including watering, pruning, weeding, pest control, replacement of dead plants etc. to ensure healthy establishment of new planting during a 12 month establishment period. This period can also serve as a kind of warranty/guarantee on the quality of the plants supplied and installed by the contractor. Monthly monitoring during the first year of establishment period is recommended.	The planting proposal seeks to compensate for the predicted tree loss resulting from the construction of the proposed works, visually integrate the proposals within its existing landscape framework and provide an improved visual amenity for future users.	Project Proponent			√	EIA, Section 3 of General Specification for Civil Engineering Works Volume 1, 2006 Edition
Table 11.18	OM-3 Seawall Design The design of the seawall for Tai O STW shall be in keeping with the adjacent landscape character.	To ensure the proposals are integrated with the existing landscape character of Tai O STW.	Project Proponent	√		√	EIA

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