

Appendix 15.2 Summary of Environmental Impacts

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Air Quality Impact					
Construction Impact					
<ul style="list-style-type: none"> Existing residential premises, industrial buildings, educational institutions, offices within the Project area and in the vicinity of the Project 	<ul style="list-style-type: none"> Dust generated from various construction activities, including excavation, demolition of existing footbridge, backfilling, and wind erosion of the excavated areas and stockpiles Fuel combustion from the use of PMEs Potential odour nuisance from desilting at downstream tidal zone 	<ul style="list-style-type: none"> AQO EIAO-TM 	<ul style="list-style-type: none"> N/A 	<p>The construction works at the nullah will be divided into six sections and the construction activities will not be undertaken at the entire work site at the same time to minimise the environmental impacts.</p> <p><u>Dust</u></p> <ul style="list-style-type: none"> Sufficient dust suppression measures as stipulated under the Air Pollution Control (Construction Dust) Regulation (Cap 311R) and good site practices should be properly implemented. Guidelines stipulated in EPD's Recommended Pollution Control Clauses for Construction Contracts should also be incorporated in the contract documents to abate dust impacts. <p><u>Fuel combustion</u></p> <ul style="list-style-type: none"> Air Pollution Control (Fuel Restriction) Regulation and Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation are introduced to regulate SO₂ emissions from commercial and industrial processes, and emissions from machines and non-road vehicles respectively. In addition, all construction plants are required to use ultra-low-sulphur diesel (ULSD) (defined as diesel fuel containing not more than 0.005% sulphur by weight) as stipulated in Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No. 19/2005 on Environmental Management on Construction Sites In order to minimise the exhaust emissions from NRMMs during construction phase, it is recommended to connect construction plant and equipment to mains electricity supply and avoid use of diesel generators and diesel-powered equipment; deploy electrified NRMMs as far as practicable; and use of exempted NRMMs not allowed. <p><u>Odour</u></p> <ul style="list-style-type: none"> The odorous materials from desilting works and excavation at nullah bed should be well covered on site with tarpaulin and placed as far away from the ASRs as possible. These odorous materials should be removed off-site for disposal as soon as possible within 24 hours to avoid any odour nuisance. During transportation, these odorous materials on the trucks should be properly covered by tarpaulin sheets to minimise the release of any potential odour. 	<ul style="list-style-type: none"> No adverse residual impacts anticipated
Operational Impact					
<ul style="list-style-type: none"> Existing and planned residential premises, industrial buildings, educational institutions, offices within the Project area and in the vicinity of the Project 	<ul style="list-style-type: none"> The odour nuisance of TWN is anticipated to be alleviated with the implementation of DWFI system under the Project to intercept the polluted discharges from drainage outlets along the nullah Minor potential odour nuisance exposed desilted materials during regular maintenance desilting at the nullah and maintenance works for the DWFI system. 	<ul style="list-style-type: none"> EIAO-TM 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> The temporary stockpile of desilted materials from maintenance works should be located as far away from the ASRs as possible. The desilted materials should be properly covered with tarpaulin / contained in watertight container on-site immediately and be removed off-site within 24 hours to avoid any odour nuisance arising. 	<ul style="list-style-type: none"> No adverse residual impacts anticipated
Noise Impact					
<ul style="list-style-type: none"> Representative existing NSRs within 300m from the boundary of the Project Site 	<ul style="list-style-type: none"> 71 – 90 dB(A) 	<ul style="list-style-type: none"> Annex 5 and 13 of EIAO-TM Leq_(30 min) 75dB(A) at 1m from the façade of residential dwellings 	<ul style="list-style-type: none"> Residential NSRs: exceed the noise criteria by up to 15 dB(A) Educational Institution 	<p>The construction works at the nullah will be divided into six sections and the construction activities will not be undertaken at the entire work site at the same time to minimise the environmental impacts.</p> <ul style="list-style-type: none"> Good site practices to limit noise emissions at the sources 	<ul style="list-style-type: none"> The mitigated predicted construction noise levels would range from 63 to 75 dB(A) within the

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		<ul style="list-style-type: none"> Leq_(30 min) 70dB(A) at 1m from the façade of schools during normal teaching hour Leq_(30 min) 65dB(A) at 1m from the façade of schools during examination period 	<p>exceed the noise criteria by up to 13 dB(A) and 18 dB(A) during normal teaching hour and examination period respectively</p>	<ul style="list-style-type: none"> Use of quality powered mechanical equipment (QPME) / quieter construction method such as silent piling by Press-in method as an alternative of traditional sheet piling, use of crusher for demolition of footbridge and use of road ripper for concrete breaking Use of movable construction noise barriers / noise insulation fabric / enclosure to screen noise from construction plant The following construction restrictions during examination period of schools: <ul style="list-style-type: none"> construction of dry weather flow intercepting channel and pipe laying along the nullah (Work Section 3, Group C-2) should not be undertaken within 30m from TWGHs Tsoi Wing Sing Primary School (NAP11) during examination period; and construction of staircases and ramps (Work Section 1, Group B-2) and (connection work to the existing sewerage system (Work Section 1, Group C-1) should not be undertaken concurrently within 30m from TWGHs Sin Chu Wan Primary School (NAP16) during examination period. Concurrent construction of this Project with Revised Trunk Road T4 should avoid examination period of Buddhist Wong Wan Tin College (NAP12) between December 2025 and February 2026. Concurrent construction of this Project with Joint-user Complex at Tsuen Nam Road, Tai Wai should avoid examination period of TWGHs Sin Chu Wan Primary School (NAP16) from January 2024 to April 2024 and July 2024 to October 2024. 	<p>criterion.</p> <ul style="list-style-type: none"> With the implementation of all feasible noise mitigation measures, no residual impacts are predicted at the representative NAPs from the various construction activities of the Project.
<ul style="list-style-type: none"> Representative existing and planned NSRs within 300m from the boundary of the underground waterpump and UV disinfection system 	<ul style="list-style-type: none"> 11 to 21 dB(A) from the Proposed Underground Pumps Given that the proposed fixed plants are properly designed to meet the maximum permissible sound power level [i.e. 95 dB(A) for the fixed plants of the UV disinfection system], no adverse fixed plant noise impact would be anticipated. 	<ul style="list-style-type: none"> Annex 5 of EIAO-TM and IND-TM issued under NCO 5 dB(A) below the appropriate ANL shown in Table 3 of the IND-TM, or the prevailing background noise levels (for quiet areas with level 5 dB(A) below the ANL) 	<ul style="list-style-type: none"> No exceedance of fixed plant noise criteria 	<p>The fixed plants of the proposed UV disinfection system are properly designed to meet the maximum permissible SWL. The following best practices should be implemented as far as practicable to further minimise any potential impacts:</p> <ul style="list-style-type: none"> Quieter plant should be chosen as far as practicable; Include noise levels specification when ordering new plant items; Locate fixed plant / louvres away from any NSRs as far as practicable; Locate fixed plant in walled plant rooms or in specially designed enclosures; Install direct noise mitigation measures including silencers, acoustic louvres and acoustic enclosure where necessary; and Develop and implement a regularly scheduled plant maintenance programme so that plant items are properly operated and serviced. The programme should be implemented by properly trained personnel. 	<ul style="list-style-type: none"> No residual noise impact is anticipated during the operational phase of the Project
Water Quality Impact					
Construction Impact					
<ul style="list-style-type: none"> WSR1: Shing Mun River; WSR2: Tai Wai Nullah; WSR3: Tin Sum Nullah; WSR4-WSR8: Natural watercourses upstream 	<ul style="list-style-type: none"> Wastewater from general construction activities; Construction site run-off; Construction works in close proximity to inland water; Construction works at Tai Wai Nullah; Sewage from construction workforce; and 	<ul style="list-style-type: none"> Annexes 6 and 14 of the EIAO-TM Water Quality Objectives (WQO) for Tolo Harbour and Channel Water Control Zone (WCZ) 	<ul style="list-style-type: none"> Wastewater generated from construction activities, including general cleaning and polishing, wheel washing, dust suppression and utility 	<p>The construction works at the nullah will be divided into six sections and the construction activities will not be undertaken at the entire work site at the same time to minimise the environmental impacts.</p> <ul style="list-style-type: none"> Implementation of the Best Management Practices (BMPs) of construction site and guidelines for handling and disposal 	<ul style="list-style-type: none"> With proper implementation of mitigation measures, no adverse residual water quality impact is expected.

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<p>of Tai Wai Nullah (also referred to as natural watercourses S1 – S5 in Section 9);</p> <ul style="list-style-type: none"> WSR7: Water gathering ground upstream of Tai Wai Nullah; W1: WSD Flushing Water Intakes at Shatin; WSR9: Water gathering ground located upstream of Tai Wai Nullah; and WSR10: Lower Shing Mun Reservoir located upstream of Tai Wai Nullah 	<ul style="list-style-type: none"> Accidental spillage of chemicals. 	<ul style="list-style-type: none"> Technical Memorandum on Standards for Effluent Discharge into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) The Practice Note (PN) for Professional Persons on Construction Site Drainage (ProPECC PN 1/94) WSD Water Quality Criteria for Flushing Water Intakes Hong Kong Planning Standards and Guidelines (HKPSG) 	<p>installation may contain high SS concentrations.</p> <ul style="list-style-type: none"> Release of uncontrolled site run-off would increase the SS levels and turbidity in the nearby marine environment. Discharge of construction materials, wastewater, excavated sediment, spillage and contaminants to the downstream receiving waters. 	<p>of construction site discharges outlined in ProPECC PN 1/94 Construction Site Drainage should be implemented.</p> <ul style="list-style-type: none"> All effluent discharged from the construction site should comply with the standards stipulated in the TM-DSS. Mitigation measures stated in ETWB TC (Works) No. 5/2005 Protection of natural streams / rivers from adverse impacts arising from construction works. Construction works should be programmed to minimise soil excavation works in rainy seasons (April to September). Diversion of the dry weather flow to the nearby sewerage system during maintenance so that the water quality at Tai Wai Nullah would be improved. The Waste Disposal Ordinance (Cap 354) (WDO) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. Disposal of chemical wastes should be carried out in compliance with the WDO. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the WDO details the requirements to deal with chemical wastes. For construction works within the nullah, including installation of DWFI system, mid-stream water pumping facilities and channel bed modification at each section, as well as desilting works downstream tidal zone, should be scheduled in dry season when the flow is low. All the construction works should be undertaken in dry conditions and physically separated from the watercourses downstream. Precautionary measures in Appendix D of ETWB TC No. 5/2005, such as temporary isolation to other connected watercourse using concrete blocks, sandbag barriers or other appropriate measures, shall be applied. Details of the containment structures, flow diversion pathway and water treatment method should be provided by the Contractor to the Engineer for approval before commencement of construction works for the Project. 	
Operational Impact					
<ul style="list-style-type: none"> WSR1: Shing Mun River; WSR2: Tai Wai Nullah; WSR3: Tin Sum Nullah; WSR4-WSR8: Natural watercourses upstream of Tai Wai Nullah (also referred to as natural watercourses S1 – S5 in Section 9); WSR7: Water gathering ground upstream of Tai Wai Nullah; W1: WSD Flushing Water Intakes at Shatin; WSR9: Water gathering ground located upstream of Tai Wai Nullah; and 	<ul style="list-style-type: none"> Non-point source surface run-off / irrigation runoff from the proposed greening elements and landscaping; Routine maintenance works for the drainage and sewerage systems along TWN, including desilting along the nullah and minor maintenance to the DWFI system, by the DSD to remove excessive / accumulated silt, vegetation, debris and obstructions within the channel (similar to the ones undertaken by DSD along TWN under existing arrangement), which may lead to disturbance and re-suspension of river sediments and thereby affecting water quality; No potential changes in hydrodynamics properties and hydrology - with the provision of treatment wetland for in-situ polishing of non-intercepted flow with less polluted discharges, the polished flow could serve as a part of the environmental flow. Furthermore, with the incorporation of water 	<ul style="list-style-type: none"> Annexes 6 and 14 of the EIAO-TM Water Quality Objectives (WQO) for Tolo Harbour and Channel Water Control Zone (WCZ) Technical Memorandum on Standards for Effluent Discharge into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) WSD Water Quality Criteria for Flushing Water Intakes Hong Kong Planning Standards and Guidelines (HKPSG) Pesticide Ordinance 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> The ProPECC PN 5/93 “Drainage Plans subject to Comments by Environmental Protection Department” provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers. The design of site drainage should follow the relevant guidelines and practices as given in the ProPECC PN 5/93. Best Management Practices (BMPs) for storm water discharge and management, as well as good administrative and management measures for riparian public open spaces are recommended for the Project to mitigate potential adverse water quality impacts. Good management practices should be adopted to properly manage the water application rate and time during irrigation to minimise chance of run-off. Use of fertilisers, if required, should be properly controlled, e.g. applications prior to forecasted heavy rain event should also be avoided to minimise the potential for run-off of residual fertiliser. Priority would be given to remove infected/sick plantings over the use of pesticides. 	<ul style="list-style-type: none"> No unacceptable residual impact would be anticipated.

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<ul style="list-style-type: none"> WSR10: Lower Shing Mun Reservoir located upstream of Tai Wai Nullah 	<p>retention and replenish designs and ecological enhancement features, average flow rate will remain similar to baseline condition. The sedimentation before the low flow channel at downstream TWN near its confluence with Shing Mun River near Man Lai Court caused by tidal influence and unfavourable surface / gradient of the existing channel (e.g. broad-crested weir and flat nullah bed), as well as the associated water quality issues and environmental nuisance, would be greatly improved.</p> <ul style="list-style-type: none"> Operation of riparian public open space - Since UV treatment is a physical treatment process, no wastewater would be generated and no secondary water quality impact would be anticipated from the operation of the UV disinfection system and the water play features in the proposed riparian public open space. The riparian walkway and amenity areas would be properly designed to restrict public access / physical contact to the water body, i.e. the low flow channel, and to ensure safe and appropriate usage of the riparian public space and water play features. Neither the water from the revitalised nullah with improved water quality or the water play features utilising treated freshwater shall be used for human or animal consumption, bathing or showering, food preparation / washing. 	<ul style="list-style-type: none"> Code of Practice for the Safe and Proper Use of Pesticides in Public Areas DSD Practice Note (PN) No. 3/2021 "Guidelines on Design for Revitalisation of River Channel" 		<ul style="list-style-type: none"> Channel that allows activities close to the water should deploy a patrol team to identify unsafe behaviours and to safeguard the public's safety. The leisure facilities should also be provided with instructions and safety warnings in conspicuous places. Good site practices should be included in planning for the maintenance works. Maintenance desilting of the nullah should be carried out on an annual basis during dry season (November to March) when the water flow is low, with the exception of during emergency situations where the accumulated silt would adversely affect the hydraulic capacity of the nullah or where flooding risk is imminent, or when complaints on environmental nuisance associated with the accumulated silt are received. Desilting should be carried out by hand-held or light machinery at low tide. 	
Waste Management Implications					
Construction Impact					
<ul style="list-style-type: none"> C&D materials, desilted materials from desilting at downstream tidal zone, chemical waste, general refuse 	<ul style="list-style-type: none"> Approximately 122,000 m³ of C&D materials would be generated, approximately 116,000 m³ of inert C&D materials (mainly soil) could be reused on-site as backfill materials whilst approximately 4,000 m³ of surplus inert C&D materials would be delivered at public fill reception facility (PFRF) for reuse. Approximately 2,000 m³ of non-inert C&D materials would be generated. Around 19.5 kg per day of general refuse will be generated from construction works and site-based staff and workers The amount of desilted materials would total 2,000 m³ Only few cubic meters per month of chemical waste will be generated from plant maintenance and operation of equipment and machineries 	<ul style="list-style-type: none"> Areas within the boundary of the Project sites Annexes 7 and 15 of the EIAO-TM Waste Disposal Ordinance (Cap.354) Waste Disposal Ordinance (Chemical Waste) (General) (Cap.354C) Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap.354N) Land (Miscellaneous Provisions) Ordinance (Cap.28) Public Health and Municipal Services Ordinance (Cap.132BK) – Public Cleansing and Prevention of Nuisances Regulation Dumping at Sea Ordinance (Cap.466) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Implementation of good site practices and waste reduction measures 	<ul style="list-style-type: none"> No unacceptable residual impact is predicted
Operational Impact					
<ul style="list-style-type: none"> Silt, debris and screenings, desilted material and chemical waste 	<ul style="list-style-type: none"> Small amount of silt, debris and screenings generated from maintenance works of the DWFI and stormwater storage tank Up to 100 m³ desilted materials from each 	<ul style="list-style-type: none"> Annexes 7 and 15 of the EIAO-TM Waste Disposal Ordinance (Cap.354) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> The silt materials, debris and screenings should be stored in enclosed bins/compaction units and transported to the designated landfill for disposal as soon as possible All chemical waste generated should be properly stored, 	<ul style="list-style-type: none"> No unacceptable residual impact is predicted

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	<p>maintenance desilting works</p> <ul style="list-style-type: none"> Very small amount of chemical waste of less than a cubic meter each time generated from maintenance works of the stormwater storage tank 	<ul style="list-style-type: none"> Waste Disposal Ordinance (Chemical Waste) (General) (Cap.354C) Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap.354N) Land (Miscellaneous Provisions) Ordinance (Cap.28) Public Health and Municipal Services Ordinance (Cap.132BK) – Public Cleansing and Prevention of Nuisances Regulation 		labelled and removed by licensed waste collectors	
<ul style="list-style-type: none"> General refuse from visitors along the revitalised TWN 	<ul style="list-style-type: none"> Based on the additional number of visitors and the 0.60 kg per capita generation rate of commercial waste (waste generated by visitor) in 2019, around 252 kg and 1,107 kg of general refuse would be generated daily on weekdays and on weekends/holidays respectively during operation. Provided that sufficient number of trash bins and recycling bins would be provided / retained for the collection of general refuse generated by visitors along the revitalised TWN, no unacceptable environmental impact and public transport impact would be anticipated. 		<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Sufficient number of trash bins and recycling bins would be provided / retained for the collection of general refuse generated by visitors 	<ul style="list-style-type: none"> No unacceptable residual impact is predicted
Land Contamination					
<ul style="list-style-type: none"> Onsite construction workers and future occupants 	<ul style="list-style-type: none"> No potential contaminating land use/activities were identified. 	<ul style="list-style-type: none"> Annex 19 of the EIAO-TM Guidance Note for Contaminated Land Assessment and Remediation Practice Guide for Investigation and Remediation of Contaminated Land Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management 	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Nil
Sewage and Sewerage Impact					
<ul style="list-style-type: none"> Existing and planned sewerage system, sewage treatment and disposal facilities 	<ul style="list-style-type: none"> An additional 2,850 m³/day dry weather flow to existing sewerage system 	<ul style="list-style-type: none"> DSD Sewerage Manual Part 1 (2013 Version) DSD Sewerage Manual Part 2 (2013 Version) DSD Technical Circulars and Practice Notes EPD Guideline for Estimating Sewage Flows for Sewerage Infrastructure Planning Version 1.0 (Report No. EPD/TP 1/05) Annex 14 of EIAO-TM 	<ul style="list-style-type: none"> Under current condition, the percentage utilisation of the concerned sewerage system is 83%. The percentage goes up to 89% with the additional dry weather flows, which still leaves roughly 11% spare capacity. 	<ul style="list-style-type: none"> No mitigation measures are required. 	<ul style="list-style-type: none"> No adverse residual impact anticipated
Ecological Impact (Terrestrial and Marine)					
Construction Impact – Direct					
<ul style="list-style-type: none"> Sites of Conservation Importance Natural Habitats Marine Habitats Habitats within Project Area 	<p><i>No direct impacts</i></p> <ul style="list-style-type: none"> Sites of conservation importance, natural habitats and marine habitats <p><i>Temporary habitat loss</i></p> <ul style="list-style-type: none"> Loss of 4.3 ha of highly disturbed habitats with low ecological value Loss of 6.8 ha of modified watercourse with low to moderate ecological value 	<ul style="list-style-type: none"> Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) EIAO-TM Annexes 8 & 16 EIAO Guidance Notes 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Reinstatement and enhancement of temporarily affected habitats 	<ul style="list-style-type: none"> Nil

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<ul style="list-style-type: none"> Ardeid Night-roost / Pre-roost 	<p><u>Direct Impact</u></p> <ul style="list-style-type: none"> No direct impact on night roosting sites of ardeids. Temporary loss of pre-roosting and foraging habitat at eastern boundary of the Project site alongside Man Lai Court to Sha Tin Government Secondary School and at the opposite side of Man Lai Court could affect the corresponding activities of the ardeids, especially in dry season. <p><u>Indirect Impact</u></p> <ul style="list-style-type: none"> Construction disturbance impacts in the lower reaches of TWN to pre-roosting ardeids during the dry season Minor construction disturbance to ardeid night roost. 	<ul style="list-style-type: none"> EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Avoidance of Ardeid Roosting Site Protection of Mature Vegetation along Nullah Restriction of Construction Hours to avoid interfacing with ardeids pre-roost/roosting hours. Compensation for the temporary loss of pre-roosting site through provision of floating pontoons of similar size at downstream of the works area, along southern bank out of Project site, as an alternative assembly point for ardeids. 	<ul style="list-style-type: none"> no unacceptable ecological impacts due to construction works are expected.
<ul style="list-style-type: none"> Wildlife, particularly the fauna species of conservation importance recorded within the Project site 	<p><u>Direct Impact</u></p> <ul style="list-style-type: none"> No significant adverse impact on direct injury / mortality of wildlife No direct impact on the habitat for day roosting of short-nosed fruit bat <p><u>Indirect Impact</u></p> <ul style="list-style-type: none"> No significant disturbance impacts (e.g. construction noise, increase human activities, artificial lighting / glare) on waterbirds / bats as the existing habitat is already subjected to high disturbance and no night-time construction would be carried out for the Project 	<ul style="list-style-type: none"> EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Phasing of Construction Activities General minimisation measures to reduce construction disturbance (e.g. dust and noise) Reduction of glare / lighting 	<ul style="list-style-type: none"> Nil
Construction Impact – Indirect					
<ul style="list-style-type: none"> Recognised Sites of Conservation Importance 	<ul style="list-style-type: none"> No recognised sites of conservation importance were identified within the terrestrial ecology Assessment Area 	<ul style="list-style-type: none"> EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
<ul style="list-style-type: none"> Waterbirds and Bats 	<p>No significant disturbance on waterbirds and bats</p> <p><i>Construction Noise</i></p> <ul style="list-style-type: none"> As avifauna are highly mobile animals expected to utilise a larger area of the habitats instead of confining to a particular locality plus the highly disturbed surrounding area, it is unlikely to have significant adverse disturbance impacts on waterbirds. Potential behaviour of roost abandonment, avoidance of foraging areas and signal masking on bat species when interference with information transfer during echolocation is significant. However, the existing habitat is already subjected to high disturbance and no night-time construction would be carried out for the Project, which would not overlap with bat species' foraging time. In addition, construction noise does not share the same frequency with most bat echolocation calls or their hearing, it is therefore unlikely to have significant disturbance impact on the recorded bat species <p><i>Increased Human Activities</i></p> <ul style="list-style-type: none"> Increased number of people or visual stimuli associated with activities like movement of plants. However, as the surrounding areas of the Project 	<ul style="list-style-type: none"> Wild Animals Protection Ordinance (Cap. 170) EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> No night-time works Good site practices General minimisation measures Reduction of glare / lighting Minimisation of dust Impacts Minimisation of noise Impacts 	<ul style="list-style-type: none"> Nil

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	<p>Area is already highly disturbed, it is unlikely to have significant disturbance impact on waterbirds due to increased human activities within the Assessment Area</p> <p><i>Artificial lighting / glare</i></p> <ul style="list-style-type: none"> potentially affect light sensitive/ nocturnal wildlife by attracting, disorienting or disrupting their light-sensitive cycles (e.g. bats). This could consequently affect their migration, foraging and breeding success of the species and causing reduction of faunal density in the area. However, the Project Area are already urbanised and surrounding developed area habitats were under high level of disturbance by artificial lighting from existing nearby industrial, residential building, roads and public facilities. No unexpected disturbance impacts by glare however are anticipated given that no night-time construction works or additional lighting would be required for the Project, and recorded nocturnal species are common and habituated to various levels of disturbance. <p><i>Dust</i></p> <ul style="list-style-type: none"> Dust could degrade the habitats adjacent to works areas Dust could cover plant leaves and may affect photosynthesis, respiration and transpiration 				
<ul style="list-style-type: none"> Aquatic flora and fauna Avifauna 	<p><i>Channel Bed Modification</i></p> <ul style="list-style-type: none"> Potentially impact downstream water quality and affect aquatic communities in the area, which in turn could decrease the value of these habitats to foraging avifauna <p><i>Discharge and runoff</i></p> <ul style="list-style-type: none"> Potentially release wastewater discharge and contaminated construction site runoff into the waters which generally consist of high concentration of suspended solids (SS) and elevated pH. 	<ul style="list-style-type: none"> Water Pollution Control Ordinance (Cap. 358) EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Scheduling of works Good site practice mitigation measures for water quality 	<ul style="list-style-type: none"> Nil
Operational Impact – Direct					
<ul style="list-style-type: none"> Aquatic flora and fauna 	<p><i>Routine maintenance desilting works</i></p> <ul style="list-style-type: none"> No unacceptable direct impact is anticipated 	<ul style="list-style-type: none"> EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Nil
Operational Impact – Indirect					
<ul style="list-style-type: none"> Along Tai Wai Nullah Aquatic habitats 	<ul style="list-style-type: none"> Potential beneficial impact from water quality improvement and ecological enhancement features 	<ul style="list-style-type: none"> EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Beneficial
<ul style="list-style-type: none"> Aquatic habitats 	<ul style="list-style-type: none"> Potential water quality impacts from maintenance and desilting works increasing SS levels. Impact is however temporary and only affect the works area of small scale with no unacceptable impacts to water quality 	<ul style="list-style-type: none"> Water Pollution Control Ordinance (Cap. 358) 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Nil
<ul style="list-style-type: none"> Ecological receiver at Shing Mun River Channel 	<ul style="list-style-type: none"> Average flow rate on part of the Tai Wai Nullah would be reduced, thereby reducing amount of freshwater input to Shing Mun River 	<ul style="list-style-type: none"> EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 Water Pollution Control Ordinance (Cap. 358) 	<ul style="list-style-type: none"> Shing Mun River is tidally influenced and salinity varied significantly from wet season to dry season, as well as the insignificant amount of 	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> No adverse impacts on these marine ecological receivers due to change in hydrodynamic conditions are anticipated

Appendix 15.2 Summary of Environmental Impacts

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
			freshwater in TWN compared to the main channel, such reduction in freshwater input resulting from Project operation is not likely to cause adverse impacts to fauna species utilising it		
<ul style="list-style-type: none"> Species of Conservation Importance (ardeids) 	<ul style="list-style-type: none"> Maintenance works such as desilting may disturb the roosting ardeids in Work Section 1 and prevent them from using the habitat. However, given that ardeids in the area are relatively disturbance-tolerant, the works are temporary in nature of small scale which have been carried out regularly, no unacceptable impacts from maintenance works on species of conservation importance are anticipated. 	<ul style="list-style-type: none"> Wild Animals Protection Ordinance (Cap. 170) EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Nil
<ul style="list-style-type: none"> Fauna 	<ul style="list-style-type: none"> No changes in hydrodynamic properties or hydrology are anticipated for the watercourses and associated riparian habitats during operational phase of the Project 	<ul style="list-style-type: none"> EIAO-TM Annexes 8 & 16 EIAO Guidance Note 6/2010 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Nil
Fisheries Impact					
Construction Impact					
<ul style="list-style-type: none"> Fishing ground and mariculture area 	<ul style="list-style-type: none"> Wastewater generated from construction site runoff, general land-based construction works, accidental spillage and potential contamination of surface water could potentially pose indirect impacts on water quality within Tai Wai Nullah, adjoining Shing Mun River Main Channel and Sha Tin Hoi 	<ul style="list-style-type: none"> EIAO-TM Annex 17 Water Pollution Control Ordinance (Cap. 358) 	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Mitigation measures adopted for water quality impact 	<ul style="list-style-type: none"> As the closest fishing ground (i.e. Sha Tin Hoi) and mariculture area (i.e. Yim Tin Tsai (East) FCZ) are at least 2.7 km and 7.0 km away from downstream of the Project area, no unacceptable adverse is anticipated Fisheries impacts arising from water quality deterioration due to land-based construction works are expected to be negligible
Operational Impact					
<ul style="list-style-type: none"> Fishing ground and mariculture area 	<ul style="list-style-type: none"> Slight water quality improvement with proposed DWFI 	<ul style="list-style-type: none"> EIAO-TM Annex 17 Water Pollution Control Ordinance (Cap. 358) 	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Insignificant
Landscape and Visual Impact					
Construction Impact					
<ul style="list-style-type: none"> Existing Landscape Resources (LRs) and Landscape Character Areas (LCAs) and Visually Sensitive Receivers (VSRs) within the assessment area 	<p><u>Key affected LR:</u></p> <ul style="list-style-type: none"> LR1 Watercourse of Shing Mun River Channel and Tai Wai Nullah LR3 Waterside Landscape Amenity along Tai Wai Nullah <p><u>Key affected LCAs:</u></p> <ul style="list-style-type: none"> LCA1 Miscellaneous Urban Landscape LCA2 Residential Urban Fringe Landscape LCA3 Residential Urban Landscape 	<ul style="list-style-type: none"> EIAO TM Annexes 10 and 18 EIAO Guidance Note No. 8/2010 on Preparation of Landscape and Visual Impact Assessment under the EIAO DEVB (GLTM) – Guidelines on Tree Preservation during Development 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> CM1 – Tree Preservation during Construction CM2 – Erection of Decorative Screen Hoardings CM3 – Control of Night time Lighting Glare CM4 – Management of Construction activities and Facilities CM 5 – Reinstatement of Temporarily Disturbed Landscape Areas CM6 – Reinstatement of Temporarily Disturbed Watercourses 	<ul style="list-style-type: none"> There will be “insubstantial” to “slight” impact on LR There will be “slight” impact on LCAs There will be “Insubstantial” to “Moderate” (for T2 only) impact on VSRs

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	<ul style="list-style-type: none"> • LCA4 "Hui" Urban Landscape • LCA5 Transportation Corridor Landscape <p>Key affected VSRs:</p> <ul style="list-style-type: none"> • G1 Tung Wah Group of Hospital Sin Chu Wan Primary School • G2 Buddhist Wong Wan Tin College • G3 The Sha Tin Che Kung Temple • I1 Industrial Development along Shing Wan Road • R3 Man Lai Court • R4 Tai Wai Village • R5 Residential Development along northern Tai Wai Nullah • R6 Residential Development along southern Tai Wai Nullah • R7 Heung Fan Liu New Village • R8 Planned Comprehensive Development Area above to Tai Wai Station – The Pavilia Farm • REC1 Tai Wai Soccer Pitch & Playground • REC2 Pok Ngar Villa • REC3 Mei Chuen House Children Play Area • REC4 Mei Lam Sports Centre • T1 Travelers along Tai Po Road & Tsing Sha Highway • T2 Travelers along Tai Wai Nullah 	<ul style="list-style-type: none"> • DEVB (GLTM) – Guidelines on Tree Transplanting • ETWB TCW No. 5/2005 Protection of streams/rivers from adverse impacts arising from construction works • HyD Guidelines HQ/GN/13 – Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit • DEVB TCW No. 7/2015 – Tree Preservation 			
Operational Impact					
<ul style="list-style-type: none"> • Existing Landscape Resources (LRs) and Landscape Character Areas (LCAs) and Visually Sensitive Receivers (VSRs) within the assessment area 	<ul style="list-style-type: none"> • Same as those for construction phase • The overall visual character along the Tai Wai Nullah would be completely changed by the proposed development after construction 	<ul style="list-style-type: none"> • EIAO TM Annexes 10 and 18 • EIAO Guidance Note No. 8/2010 on Preparation of Landscape and Visual Impact Assessment under the EIAO • DEVB TCW No. 7/2015 – Tree Preservation • DEVB (GLTM) – Management Guidelines for Mature Trees 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • OM1 – Greening Enhancement along Channel Bed and Embankment • OM2 – Provision of Recreational Opportunity along Nullah • OM3 – Compensatory Tree Planting • OM4 – Sensitive and Aesthetically Pleasing Design • OM5 – Tree Transplantation 	<ul style="list-style-type: none"> • Only "insubstantial" to "slight" impacts are anticipated on Day 1 of operation • "Insubstantial" to "slight" impacts are anticipated in Year 10 of operation
Cultural Heritage					
<ul style="list-style-type: none"> • Gatehouse of Pok Ngar Villa (New item pending for grading assessment) 	<ul style="list-style-type: none"> • Potential direct impacts due to damages through contacting with construction machineries and site negligence would be anticipated. • Indirect impacts of ground-borne vibration, tilting and settlement would be anticipated. 	<ul style="list-style-type: none"> • EIAO-TM Annexes 10 and 19 • Antiquities and Monuments Ordinance (A&MO) (Cap.53) • Guidance Note on Assessment of Impact on Sites of Cultural Heritage in Environmental Impact Assessment Studies 	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • A buffer zone of 5 m from Gatehouse of Pok Ngar Villa should be set up, in which no construction machineries and construction storage should trespass the buffer zone. Fencing should also be set up to clearly demarcate the buffer zone. • Monitoring of vibration, settlement and tilting incorporated with AAA system shall be employed. A monitoring proposal should be submitted to AMO for comments before commencement of the works. 	<ul style="list-style-type: none"> • Acceptable impact with mitigation measures
<ul style="list-style-type: none"> • Li Cottage (Grade 1) • No. 1 First Street, Tai Wai (Grade 3) • No. 2 First Street, Tai Wai (Grade 3) • No. 3 First Street, Tai Wai (Grade 3) • Entrance Gate, Chik Chuen Wai (Grade 2) 	<ul style="list-style-type: none"> • Direct impacts would not be anticipated. Indirect impacts of ground-borne vibration, tilting and settlement would be anticipated. 		<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • Monitoring of vibration, settlement and tilting incorporated with AAA system shall be employed. A monitoring proposal should be submitted to AMO for comments before commencement of the works. 	<ul style="list-style-type: none"> • Acceptable impact with mitigation measures

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<ul style="list-style-type: none"> • Declared monument – The Old House, Wong Uk Village • Entrance Gate, Chik Chuen Wai (Grade 2) • Che Kung Temple (Sha Tin) (Grade 2) • Lower Shing Mun Reservoir, Dam (Grade 3) • Lower Shing Mun Reservoir, Weir (Grade 2) • Lower Shing Mun Reservoir, Supply Basin (Grade 3) 	<ul style="list-style-type: none"> • No direct or indirect impact is anticipated given the large separation distance (>100 m) between the Project boundary and the Declared Monument / the other built heritage. 		<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • Nil 	<ul style="list-style-type: none"> • Nil