

Appendix 13.2 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 Phase					
Existing Air Sensitive Receivers (including offices, residential units, fire station etc.) and Planned Air Sensitive Receivers with mainly residential uses such as Wang Toi Shan Yau Uk Tsuen and other village houses along roadside of Kam Tin Road and Lam Kam Road	No exceedance of AQO is anticipated during construction phase	<ul style="list-style-type: none"> • TM-EIAO and AQO • 1-hr Average TSP Conc: 500 µg/m³ • 1-hr Average NO₂ Conc: 200 µg/m³ (Number of exceedance allowed: 18) • Annual Average NO₂ Conc: 40 µg/m³ • 24-hr Average RSP Conc: 100 µg/m³ (Number of exceedance allowed: 9) • Annual Average RSP Conc: 50 µg/m³ • 24-hr Average FSP Conc: 	N/A	<ul style="list-style-type: none"> • Limitation of each active construction work front to occupy about 50m x 10m work area at any one time, and with a separation distance of more than 600m between two concurrent work areas; • Works area for site clearance shall be sprayed with water before, during and after the operation so as to 	No adverse residual impacts anticipated

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		<p>75 µg/m³ (Number of exceedance allowed: 9)</p> <ul style="list-style-type: none"> Annual Average FSP Conc: 35 µg/m³ 		<p>maintain the entire surface wet;</p> <ul style="list-style-type: none"> All dusty materials shall be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet; Any stockpile of dusty materials shall be covered entirely by impervious sheeting; and/ or placed in an area sheltered on the top and 4 sides; and 	

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				<ul style="list-style-type: none"> • Good site practice 	
Operational Phase					
Existing Air Sensitive Receivers (including offices, residential units, fire station etc.) and Planned Air Sensitive Receivers with mainly residential uses such as Wang Toi Shan Yau Uk Tsuen and other village houses along roadside of Kam Tin Road and Lam Kam Road	<u>NO2</u> 19 th highest 1-hour average NO2 conc.: 59-144 µg/m3 Highest annual average NO2 conc: 11-30 µg/m3 <u>RSP</u> 10th highest 24-hour average RSP conc.: 77-83 µg/m3 Annual average RSP conc.: 33-35 µg/m3 <u>FSP</u> 10th highest 24-hour average FSP conc.: 58-62 µg/m3 Annual average FSP conc.: 23-25 µg/m	<ul style="list-style-type: none"> • TM-EIAO and AQO • 1-hr Average NO2 Conc: 200 µg/m3 (Number of exceedance allowed: 18) • Annual Average NO2 Conc: 40 µg/m3 • 24-hr Average RSP Conc: 100 µg/m3 (Number of exceedance allowed: 9) • Annual Average RSP Conc: 50 µg/m3 • 24-hr Average FSP Conc: 75 µg/m3 (Number of exceedance allowed: 9) • Annual Average FSP Conc: 	No exceedances are predicted at all ASRs	No mitigation measure is required	No adverse residual impacts anticipated

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		35 µg/m ³			
Noise Impact					
Construction Phase					
Existing Noise Sensitive Receivers with mainly residential uses such as Wang Toi Shan Yau Uk Tsuen and other village houses along roadside of Kam Tin Road and Lam Kam Road	Predicted construction airborne noise levels would range from 43 to 75 dB(A)	TM-EIAO Annex 5 for non-restricted hours for domestic premises: 75 dB(A); non-restricted hours for educational institutions: 70 dB(A); and during examinations for educational institutions: 65 dB(A)	No exceedances are predicted at all NSRs	Adoption of good site practices to limit noise emissions at the source; use of quality powered mechanical equipment (QPME); and use of temporary noise barriers to screen noise from PMEs	No adverse residual impacts anticipated
Operational Phase					
Existing and Planned Noise Sensitive Receivers with mainly residential uses such as	Predicted noise levels at 2040 would range from 64 to 82 dB(A)	HKPSG Chapter 9 for domestic premises: 70 dB(A)	Exceed the noise criterion up to 12 dB(A)	Vertical noise barrier and Low Noise Road Surface	The mitigated predicted construction noise levels would range from 64 to 82

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Wang Toi Shan Yau Uk Tsuen and other village houses along roadside of Kam Tin Road and Lam Kam Road					dB(A), which exceeds the criterion. Residual impacts at those NSRs are anticipated
Water Quality Impact					
Construction Phase					
Water Sensitive Receivers such as local streams near Kadoorie Experimental Farm, Ling Wan Monastery, Wong Chuk Yuen, Sheung Tsuen and Kam Tin Bypass; nullah near Wang Toi	Potential water quality impact might be arisen from the associated construction works of road widening and improvement works such as retaining wall and geotechnical works. Key water pollution sources include: • General construction activities and site runoff	<ul style="list-style-type: none"> • TM-EIAO • Water Pollution Control Ordinance (WPCO) (Cap. 358) • Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters 	Not applicable	<ul style="list-style-type: none"> • Good site practices; • Surface run-off from construction sites should be discharged into storm drains via sand/silt removal facilities such as sedimentation basin/tank. Earth bunds 	No adverse residual impact anticipated

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<p>Shan Hung Mo Tam, Shek Kong Barracks and the channelized Kam Tin River.</p>	<p>from wash water from dust suppression measures, vehicle wheel washing facilities and concrete casting;</p> <ul style="list-style-type: none"> • Surface runoff from rainfall and wind erosion of exposed surface areas and material stockpiles; • Spillage of chemicals, lubrication oils, solvent and petroleum products; • Sewage from the construction workforce; and • Construction works in close proximity of nearby 	<p>(TM-DSS)</p> <ul style="list-style-type: none"> • Practice Note for Professional Persons (ProPECC) PN 1/94 		<p>or sand bag barriers with tarpaulin sheet should be provided on site boundaries to intercept surface run-off from outside the site; and</p> <ul style="list-style-type: none"> • Silt removal facilities and manholes should be maintained and the deposited silt and grit should be removed regularly; • Contractor must register as a chemical waste producer if chemical wastes would be 	

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	water bodies			<p>produced from the construction activities;</p> <ul style="list-style-type: none"> • The practices outlined in ETWB TC (Works) No. 5/2005 “Protection of natural streams/rivers from adverse impacts arising from construction works” would be adopted where applicable • The proposed works site inside or in the proximity of natural rivers and streams should be temporarily isolated, such as by 	

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				<p>placing of sandbags or silt curtains with lead edge at bottom and properly supported props, to prevent adverse impacts on the stream water qualities. Other protective measures should also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work site.</p> <ul style="list-style-type: none"> • The natural bottom and existing flow in the river should be 	

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				preserved as much as possible to avoid disturbance to the river habitats. If temporary access track on riverbed is unavoidable, this should be kept to the minimum width and length. Temporary river crossings should be supported on stilts above the riverbed.	
Operational Phase					
Water Sensitive Receivers such as local streams near Kadoorie Experimental Farm,	Water quality in WSRs would be deteriorated by runoff	<ul style="list-style-type: none"> • TM-EIAO • Water Pollution Control Ordinance (WPCO) (Cap. 358) 	Not applicable	Road gullies would be provided to direct and collect all surface run-off to the drainage system.	No adverse residual impact anticipated

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Ling Wan Monastery, Wong Chuk Yuen, Sheung Tsuen and Kam Tin Bypass; nullah near Wang Toi Shan Hung Mo Tam, Shek Kong Barracks and the channelized Kam Tin River.		<ul style="list-style-type: none"> Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) Practice Note for Professional Persons (ProPECC) PN 1/94			
Waste Management					
Construction & Operational Phase					
Water, air sensitive receivers and construction workers at the works area.	It is estimated that 32,970m3 of inert C&D material (public fill) to be disposed of at public fill reception facility at Tuen Mun Area 38 for other beneficial uses, 2,690 m3 of inert C&D	<ul style="list-style-type: none"> TM-EIAO Annex 7 and Annex 15 Waste Disposal Ordinance (Cap. 354) Waste Disposal (Chemical Waste) (General) 	Not applicable	<ul style="list-style-type: none"> An on-site environmental co-ordinator should be identified at the outset of the works; Good site practices; and 	No adverse residual impact anticipated

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	material to be reused on-site, and 6,660 m3 of non-inert C&D waste to disposed of at NENT landfill.	Regulation (Cap. 354C) <ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • Public Health and Municipal Services Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation • Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N) 		<ul style="list-style-type: none"> • The Contractor shall comply with all relevant statutory requirements and guidelines and their updated versions that may be issued during the course of Project construction. 	
Land Contamination Impact					
Construction workers and future users within	Potential contamination within the Project Boundary is	<ul style="list-style-type: none"> • Guidance Note for Contaminated Land 	Not applicable	Site re-appraisal is required for the identified potentially	No adverse residual impact anticipated

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the Project Boundary	identified	<p>Assessment and Remediation</p> <ul style="list-style-type: none"> • Practice Guide for Investigation and Remediation of Contaminated Land • Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management 		contaminated sites as well as other areas within the Project Boundary to address any change in land use that may give rise to potential land contamination issues as soon as the sites become accessible and a supplementary CAP should be submitted and endorsed by EPD before site investigation. A CAR which includes the site investigation sampling and testing results will be prepared for EPD's agreement upon completion of the site investigation. If	

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				contamination is identified, RAP shall be also prepared and submitted to EPD for agreement prior to the commencement of the remediation works. Upon completion of the remediation, a Remediation Report (RR) shall be submitted to EPD for agreement. No construction works of site should be carried out prior to the agreement of the RR.	
Ecological Impact					
Construction & Operation Phase					
The works area and its	Habitat loss – about 804m2	TM-EIAO Annex 8 and Annex	Not applicable	• The Project Boundary	With implementation

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adjacent areas along Kam Tin Road and Lam Kam Road which include Lam Tsuen Country Park and the FSW, and mainly Urbanized / disturbed area (including roadside plantation)	watercourse, 3,840 m ² secondary woodland, 600m ² agricultural land and 8,800m ² Urbanized / disturbed area (including roadside plantation)	16		<p>is designed to avoid encroachment of the Lam Tsuen Country Park and the FSW;</p> <ul style="list-style-type: none"> • Confining the works within the Project Boundary; • Controlling access of site staff to avoid damage to the vegetation in surrounding areas; • Placement of equipment or stockpile in the existing disturbed / urbanized area within the Project Boundary of 	of the mitigation measures, no adverse residual impacts to terrestrial ecology are anticipated.

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				<p>the Project to minimize disturbance to vegetated areas;</p> <ul style="list-style-type: none"> • Reinstatement and enhancement of temporarily affected habitats • Controlling of site runoff • Reducing Glare / Lighting • Minimization of disturbance 	
Landscape and Visual Impact					
Existing Trees, Landscape Resources (LRs) and Landscape	756 out of 2,049 nos. of existing trees will be felled.	<ul style="list-style-type: none"> • Environmental Impact Assessment Ordinance (Cap. 499 S.16) and the 	Not applicable	<ul style="list-style-type: none"> • Preservation of existing vegetation; • The landscape of these 	With implementation of the mitigation measures, no adverse

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Character Areas (LCAs) and Visually Sensitive Receivers (VSRs) within the assessment area		<p>Technical Memorandum on EIA Process (EIAO-TM), particularly Annexes 10 and 18</p> <ul style="list-style-type: none"> • Environmental Impact Assessment Ordinance Guidance Note No.8/2010 “Preparation of Landscape and Visual Impact Assessment under the EIAO” • Town Planning Ordinance (Cap 131) • Study on Landscape Value Mapping of Hong Kong • Hong Kong Planning Standards and Guidelines 		<p>works areas should be restored to its original status or new amenity area following the completion of the construction phase;</p> <ul style="list-style-type: none"> • Replanting of disturbed vegetation should be undertaken at the earliest possible stage during the construction phase; • Tree transplantation; • The alignment and structures associated with the widened road should integrated, as far 	<p>residual impacts to landscape and visual sensitive receivers are anticipated.</p>

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		<p>Chapter 4 and Chapter 11</p> <ul style="list-style-type: none"> • Guiding Principles on Use of Native Plant Species in Public Works Project issued by the Greening, Landscape and Tree management Section. Development Bureau • Guidelines on Greening of Noise Panels issued by the Greening, Landscape and Tree management Section. Development Bureau • General Specifications for Civil Engineering Works (2006 Edition) by CEDD • Forests and Countryside 		<p>as technically feasible, with existing roadside structures and the landscape context to reduce the potential cumulative impact of the proposed works;</p> <ul style="list-style-type: none"> • Roadside planting; • In accordance with DEVB TC(W) No. 7/2015, the compensatory planting proposal should has the basic primary objective of planting compensatory trees in a ratio not less than 1:1 in 	

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		<p>Ordinance (Cap.96)</p> <ul style="list-style-type: none"> • Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586).; • Development Bureau Technical Circular (Works) No. 7/2015 – Tree Preservation • Environment, Transport and Works Bureau Technical Circular (Works) No. 29/2004, Registration of Old and Valuable Trees, and Guidelines for their Preservation • Development Bureau 		<p>terms of quantity as far as practicable;</p> <ul style="list-style-type: none"> • Treatment of retaining walls and slopes; and • Provision of visually pleasing aesthetic treatment on noise barriers. 	

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		<p>Technical Circular (Works) No. 6/2015 – Maintenance of Vegetation and Hard Landscape Features</p> <ul style="list-style-type: none"> • Development Bureau Technical Circular (Works) No. 2/2012 – Allocation of Space for Quality Greening on Roads • Nature Conservation Practice Note No.2 (Revised June 2006), Measurement of Diameter at Breast Height (DBH) – by AFCD • GEO publication No. 1/2011 - Technical 			

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		<p>Guidelines on Landscape Treatment for Slopes;</p> <ul style="list-style-type: none"> • GEO Publication (1999) – Use of Vegetation as Surface Protection on Slopes; • GEO Publication No. 6/2007 - Updating of GEO Publication no. 1/2000 - Technical Guidelines on Landscape Treatment and Bio-engineering for Manmade Slopes and Retaining Walls; • Landscape Character Map of Hong Kong (2005 Edition); 			

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		<ul style="list-style-type: none"> <li data-bbox="790 499 1178 619">• The Outline Zoning Plan under the Town Planning Ordinance 			