

Appendix 15.1 – Key Assessment Assumptions and Limitations of Assessment Methodologies

Assessment Methodology	Key Assessment Assumptions	Limitations of Assessment Methodologies / Assumptions	Prior Agreements with EPD / Other Authorities		Proposed Alternative Assessment Tools / Assumptions (if applicable)
			EIA Study Brief (ESB-348/2021) Clause Reference	Relevant Documentation	
Air Quality Impact Assessment					
Construction Phase					
The air quality impact assessment for the Project follows Annex 4 and Annex 12 of the EIAO-TM. Dust emission will be the major air pollutant. Qualitative assessment was conducted to review the potential dust impacts. Good site practices and dust control measures were proposed.	Assumptions made in the assessment are based on the latest design.	The construction programme is tentative and subject to contractor's design and site circumstances.	Clause 3.4.4, and Sections 3, 5 of Appendix B	-	-
Operational Phase					
The air quality impact assessment for the Project follows Annex 4 and Annex 12 of the EIAO-TM. Vehicular emission impact was due to moving vehicles along the Project, other concurrent road projects (e.g. R11, etc.) and other connecting roads; and idling vehicles from PTI and HGV carpark.	<p>Emission from Open Road Traffic</p> <ul style="list-style-type: none"> Traffic flow and vehicle compositions in 24-hour profile reported in the Traffic Impact Assessment endorsed by Transport Department was adopted. Vehicular emissions from open road was based on modelling results of EMFAC-HK v4.3 and the air quality impact was predicted using CALINE4 model. Start emissions from parking sites have been assessed on open roads based on the estimated trips from default trip and default VKT of the whole territory of Hong Kong in the EMFAC-HK model, in accordance with EPD's guideline "Calculation of Start Emissions in Air Quality Impact Assessment". <p>Emission from Tunnel Portals and Ventilation Building</p> <ul style="list-style-type: none"> The split ratio of vehicular exhaust between portal to ventilation building is referred to the latest engineering design. <p>Emission from Public Transport Interchange and Major Heavy Good Vehicle and Coach Parking</p> <ul style="list-style-type: none"> Trip data and assumption on sitting time at the parking sites are derived based on traffic survey and provided by the Project Traffic Consultant. Cold idling emission factors have been made reference to EPD's Note on Calculation of Start Emissions in Air Quality Impact Assessment. Warm idling emission are estimated based on the emission factors for different Euro engine types in accordance with PIARC Road Tunnels: Vehicle Emissions and Air Demand for Ventilation, 2019. <p>Emission from Chimneys and Other Industrial Operation</p> <ul style="list-style-type: none"> Emission rates, source parameters including stack height, exit temperature, exit velocity, internal diameter of the stacks, as well as operation hours (i.e. 24 hours) are made reference to best available information (e.g. respective SP register, Air Pollution Control Plan, approved EIA reports, etc). Air quality impact was predicted using AERMOD model. <p>Marine Emission from Fairway and Gold Coast Marina</p> <ul style="list-style-type: none"> Marine traffic projection provided by Marine Traffic Consultant and agreed by Marine Department was adopted. Emission factor in "Study on Marine Vessels Emission Inventory" and "Regulatory Impact Analysis: Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression Ignition Engines 	<ul style="list-style-type: none"> A 24-hour profile of traffic data was assumed for the whole year. No daily variation was considered. Start emission modelled in open road would be overestimated on local roads, given the conservative assumption on sitting time. Background air pollutant concentration at Year 2030 may overestimate air quality in the future Year 2033. 	Clause 3.4.4, and Sections 4, 5 and 6 of Appendix B	-	-

Assessment Methodology	Key Assessment Assumptions	Limitations of Assessment Methodologies / Assumptions	Prior Agreements with EPD / Other Authorities		Proposed Alternative Assessment Tools / Assumptions (if applicable)
			EIA Study Brief (ESB-348/2021) Clause Reference	Relevant Documentation	
	<p>Less than 30 Litres Per Cylinder” from USEPA for respective vessels was adopted.</p> <p>Background Concentration</p> <ul style="list-style-type: none"> PATH background concentration at Year 2030 was adopted. 				
Noise Impact Assessment					
Construction Phase					
The construction noise impact assessment for the Project follows Annex 5 and Annex 13 of the EIAO-TM and GW-TM under NCO. Qualitative assessment was carried out to demonstrate no adverse construction noise impact by committing to adopt appropriate noise mitigation measures during construction phase.	Assumptions made in the assessment are based on the latest design.	The construction programme is tentative and subject to contractor’s design and site circumstances.	Clause 3.4.5 and Section 2 of Appendix C	-	-
Operational Phase					
The noise impact assessment for the Project follows Annex 5 and Annex 13 of the EIAO-TM. Traffic noise was predicted using the methodology provided in the UK Department of Transport Calculation of Road Traffic Noise (CRTN) 1988. The assessment was based on projected peak hour flows for the worst year within 15 years after commissioning of proposed road networks.	<p>Since the commissioning year of operation of the Project will be in Year 2033, the assessment year for road traffic noise is taken as Year 2048 (which is the maximum traffic projection within 15 years after full operation for the proposed development).</p> <p>The existing noise screening structures, existing mitigation measures and mitigation measures by other concurrent projects in the vicinity were taken into account in the assessment</p>	<p>Traffic noise levels were predicted based on free flow condition. Traffic congestion and hence reduced traffic speed were not taken into account in the noise model. Quantitative uncertainties in the assessment of impacts should be considered when drawing conclusion from the assessment.</p> <p>In carrying out the assessment, realistic worst case assumptions have been made in order to provide a conservative assessment of noise impacts. For the assessment of road traffic noise impact, peak hourly traffic flows from the worst case traffic impact assessment were adopted.</p>	Clause 3.4.5 and Section 3 of the Appendix C	-	-
The fixed noise source impact assessment for the Project follows Annex 5 and Annex 13 of the EIAO-TM and IND-TM under NCO. Qualitative assessment was carried out to demonstrate no adverse fixed noise sources impact by committing to adopt appropriate noise mitigation measures during operational phase.	Assumptions made in the assessment are based on the latest design.	-	Clause 3.4.5 and Section 4 of the Appendix C	-	-

Assessment Methodology	Key Assessment Assumptions	Limitations of Assessment Methodologies / Assumptions	Prior Agreements with EPD / Other Authorities		Proposed Alternative Assessment Tools / Assumptions (if applicable)
			EIA Study Brief (ESB-348/2021) Clause Reference	Relevant Documentation	
Water Quality Impact Assessment					
Constructional Phase					
<p>Assessment of water quality impact in operational phase refers the methodology in Annex 6 and Annex 14 of the EIAO-TM.</p> <p>The water quality impact during the construction phase were identified. Mitigation measures are recommended for the identified source of water pollution to minimise the potential water quality impacts</p>	The types of water pollution to be generated from the Project are based on the latest construction methodology.	-	Clause 3.4.6, Appendix D	-	-
Operational Phase					
<p>Assessment of water quality impact in operational phase refers the methodology in Annex 6 and Annex 14 of the EIAO-TM.</p> <p>The water quality impacts during the operational phase were identified. Mitigation measures are recommended for the identified source of water pollution to minimise the potential water quality impacts.</p>	Assumptions made in the assessment are based on the latest design.	-	Clause 3.4.6 and Appendix D	-	-
Waste Management					
The waste management implication assessment for the Project was conducted following Annex 7 and Annex 15 of the EIAO-TM and the requirements in the EIA Study Brief (ESB-334/2020).	<ul style="list-style-type: none"> Waste quantities to be generated from the Project were estimated based on the engineering assessment and Project design. Few hundred litres of chemical waste (e.g. spent lubricant oil) is assumed to be generated monthly during construction phase and maintenance activities during operation phase. General refuse quantities to be generated from the Project were estimated based on the number of estimated workforce and future occupants. 	N/A	Clause 3.4.7, Appendix E	N/A	N/A
Land Contamination					
<p>The land contamination assessment followed:</p> <ul style="list-style-type: none"> Annex 19 of the EIAO-TM; Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management Guidance Note for Contaminated Land Assessment and Remediation Practice Guide for Investigation and Remediation of Contaminated Land 	<ul style="list-style-type: none"> Assumptions made in the assessment are based on latest boundary of the Project and the works of the Project, as well as current and historical land uses. 	All the identified potentially contaminated area within the Assessment Area are currently in operation and inaccessible to conduct site investigation (SI) and sampling works and the subsequent assessment / remediation works are therefore proposed to be carried out after area become available but prior to the construction works at the concerned areas. For these concerned areas, review of the initial	Clause 3.4.8, Appendix F	Contamination Assessment Plan (CAP)	N/A

Assessment Methodology	Key Assessment Assumptions	Limitations of Assessment Methodologies / Assumptions	Prior Agreements with EPD / Other Authorities		Proposed Alternative Assessment Tools / Assumptions (if applicable)
			EIA Study Brief (ESB-348/2021) Clause Reference	Relevant Documentation	
		<p>contamination, possible remediation methods, potential insurmountable impacts, SI requirements were presented in the CAP.</p> <p>SI works should then be conducted according to the supplementary CAP(s). Contamination Assessment Report(s) (CAR(s)) and Remediation Action Plan(s) (RAP(s)), if contaminated soil and/or groundwater is identified, should be prepared and submitted to EPD for agreement. Any identified contaminated soil and groundwater should be treated according to RAP(s) approved by EPD and Remediation Report(s) (RR(s)) should be submitted to EPD for agreement after the completion of the remediation works. No development works at the contaminated areas shall be commenced prior to EPD's agreement of the RR(s).</p>			
Hazard to Life					
The hazard to life assessment follows Section 3.4.9 in the EIA Study Brief.	<p>Hazard to life assessment was carried out to evaluate the risks associated with the transportation, storage and use of explosives during construction phase of the Project. Cumulative impacts with Route 11 have also been taken into considered.</p> <p>The latest arrangement and use of explosives were based on the latest design.</p> <p>A Hazard Management Plan would be formulated with a view to aligning the understanding of the risk of the three projects R11/TMB/LTUQ so that all the working populations at Lam Tei Quarry area could be considered as on-site populations in the QRA.</p>	-	Clause 3.4.9, Appendix G	-	-
Landfill Gas Assessment					
The landfill gas assessment for the Project was conducted following: <ul style="list-style-type: none"> Annexes 7 and 19 of the TM-EIAO; EIA Study Brief (ESB-334/2020) 	The landfill gas assessment was based on the recent landfill gas monitoring results of Pillar Point Valley Landfill (PPVL) obtained from EPD.	N/A	Clause 3.4.10, Appendix H	N/A	N/A

Assessment Methodology	Key Assessment Assumptions	Limitations of Assessment Methodologies / Assumptions	Prior Agreements with EPD / Other Authorities		Proposed Alternative Assessment Tools / Assumptions (if applicable)
			EIA Study Brief (ESB-348/2021) Clause Reference	Relevant Documentation	
<ul style="list-style-type: none"> Guidance Note on Qualitative Landfill Gas Hazard Assessment (EPD/TR8/97) 					
Ecological Impact					
<p>The ecological impact assessment for the Project was conducted following:</p> <ul style="list-style-type: none"> Annex 8 and Annex 16 of the EIAO-TM; The requirements in the EIA Study Brief (ESB-334/2020); General approach and methodology for assessment of ecological impacts; and EIAO Guidance Note No. 6/2010, 7/2010 and 10/2010 for general guidelines and methodology for conducting ecological assessment and ecological baseline survey. 	The ecological impact assessment and evaluation were undertaken based on results of literature review and ecological field surveys	Surveys were taken in representative locations and transect routes inside and in the vicinity of the Project as well as the assessment area. Baseline descriptions are considered sufficiently representative to allow subsequent assessments to be made.	Clause 3.4.11, Appendix I	Method Statement for Ecological Survey	N/A
Landscape and Visual Impact					
<p>The landscape and visual impact assessment for the Project was conducted following:</p> <ul style="list-style-type: none"> Annex 10 and Annex 18 of the EIAO-TM; The requirements in the EIA Study Brief (ESB-334/2020); EIA Guidance Note No. 8/2010 	<ul style="list-style-type: none"> Landscape and Visual Impact Assessment was carried out based on the project description provided in Section 2 of the EIA Report The broad brush tree and vegetation survey was undertaken in accordance with Clause 3.4.13 of Appendix K of the EIA Study Brief. 	N/A	Clause 3.4.13, Appendix K	N/A	N/A
Cultural and Heritage Impact					
<p>The cultural heritage impact assessment for the Project was conducted following:</p> <ul style="list-style-type: none"> A&M Ordinance (Cap. 53); Annex 10 and Annex 19 of the EIAO-TM; The requirements in the EIA Study Brief (ESB-334/2020); and Guidelines for CHIA. 	300m study area was adopted for Archaeological Impact Assessment and Built Heritage Impact	N/A	Clause 3.4.14, Appendix L	Archaeological Impact Assessment Working Paper	N/A