Contents

Appendices

15 Conclusion

15.1 General

15.1.1.1 This Environmental Impact Assessment (EIA) Report has been prepared for Route 11 (Section between Yuen Long and North Lantau) (the Project) in accordance with the requirements given in the EIA Study Brief (SB) (No.: ESB-352/2022) and the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). Environmental assessment of the potential environmental impacts associated with the construction and operation of the Project has been conducted. Environmental issues covered in this EIA include:

- Air quality impact;
- Noise impact;
- Water quality impact;
- Waste management implications;
- Land contamination;
- Hazard to life;
- Ecological impact (terrestrial and marine);
- Fisheries impact;
- Landscape and visual impact; and
- Impact on cultural heritage.

15.1.1.2 This section summarises the assessment results of each technical aspect and concludes the acceptability of the overall environmental performance of the Project.

15.1.1.3 The key assessment assumptions, limitation of assessment methodologies and all related approaches on assessment of different environmental aspects requiring agreements with Environmental Protection Department (EPD) are given in **Appendix 15.1**.

15.1.1.4 A summary of environmental impacts identified in this EIA is provided in **Appendix 15.2** and the conclusions of each technical aspect are described in the following sections.

15.2 Air Quality

15.2.1 Construction Phase

15.2.1.1 The air quality assessment studies the potential air quality impacts on Air Sensitive Receivers (ASRs) due to the construction and operation of the Project.

15.2.1.2 Potential construction dust impact would be generated from site clearance, soil excavation, backfilling, reclamation, construction of tunnels, blasting works, barging facilities, proposed concrete batching plants and construction vessels, etc. during construction phase of the Project. A comprehensive review has been

conducted on the monitoring data for similar infrastructure projects and the construction dust impact assessment indicate that given the implementation of good site practices and mitigation measures, such as regular watering, implementation of vehicle washing facilities at the construction site exits, tunnel blasting in a fully enclosed environment, and open blasting with blast screens, cages or mats, etc., adverse air quality impact during construction phase is not anticipated. Nevertheless, continuous dust monitoring is also proposed at comprehensive locations (i.e. closest ASRs in all directions) to ensure that there is no adverse dust impact on the nearby ASRs, and action plan is also proposed in case of exceedance of action and limit levels.

15.2.2 Operational Phase

15.2.2.1 A quantitative operational air quality assessment has been conducted taking into account the vehicular emission impacts associated with the Project and existing road network, and potential concurrent projects (including, but not limited to, induced traffic due to Tuen Mun Bypass (TMB), Tsing Yi-Lantau Link (TYLL), Hong Kong Island West-Northeast Lantau Link (HKIWe-NEL Link), etc.) within the assessment area. Cumulative impact from other contributors, including territory wide vehicular emission, power plants, marine emission, as well as regional emission from Pearl River Delta, have also been taken into account as background contribution. The planned air sensitive uses within the operation area of the TMB shall be properly designed such that any openings, openable windows, and/or fresh air intakes will be located and avoided from the predicted exceedance zone at 1.5mAG. Further review of the layout and design of operation area will be conducted in detailed design stage to ensure compliance of the AQOs. It is concluded that the predicted cumulative air quality impacts on all air sensitive receivers would comply with the air quality objectives (AQOs) during the operational phase, and hence adverse impacts are not anticipated.

15.2.2.2 Moreover, during the subsequent design stage and the operational stage, the ventilation engineer should conduct reviews on the ventilation scheme covering different periods of a day, taking into account the contemporary circumstance such as latest traffic forecast, traffic composition, update on the ambient air quality, etc., and then review and update the air quality assessment as necessary to demonstrate full compliance of the AQOs. These reviews would allow the designer and operator to optimize the operation of the ventilation system without compromising the compliance of AQOs.

15.3 Noise

15.3.1.1 The noise assessment studies the potential noise impacts on Noise Sensitive Receivers (NSRs) due to the construction and operation of the Project.

15.3.2 Construction Noise

15.3.2.1 Potential construction noise impact would be generated from the use of PME during construction phase of the Project. A review has been conducted on the construction methodology, and it is considered that given the implementation of good site practices and mitigation measures, such as quieter construction method, quieter plant, silencer, movable noise barrier, noise enclosure / barrier, etc., adverse construction noise impact during construction phase is not anticipated.

15.3.2.2 Nevertheless, a Construction Noise Management Plan (CNMP) shall be submitted for approval which will contain a quantitative construction noise impact assessment, the adopted quieter construction method and equipment, noise mitigation measures and the construction noise impact monitoring and audit programme once available and in any case before the tender and commencement of the project construction, and if there is any change to the construction noise mitigation measures recommended in the CNMP, an updated CNMP shall be submitted one month before the implementation of such change.

15.3.3 Road Traffic Noise

15.3.3.1 A quantitative road traffic noise impact assessment has been conducted for planned, existing and committed noise sensitive uses. The predicted road traffic noise impact would comply with respective noise criteria at all NSRs. Noise mitigation measures at Lam Tei, So Kwun Wat and Tsing Lung Tau, including 1) low noise road surfacing on applicable road sections; and 2) noise barriers as well as semi-enclosure along suitable road sections, as well as (3) at-receiving end measures as agreed with relevant project proponents, will be implemented.

15.3.4 Fixed Noise Sources

15.3.4.1 Potential fixed noise source impact would be generated from the ventilation shaft of ventilation buildings and mechanical system of the administration buildings in administration area. A review has been conducted on the design of these fixed noise sources and it is considered that given the implementation of good design and mitigation measures, such as quieter plant, acoustic louvres, silencer, barriers, enclosures, etc., adverse fixed noise source impact during operational phase is not anticipated.

15.3.4.2 Nevertheless, a Fixed Noise Source Management Plan (FNMP) shall be submitted for approval which will contain the quantitative fixed noise sources impact assessment, noise mitigation measures and fixed noise sources impact monitoring and audit programme, with reference to the updated and identified inventories once available and in any case before the commencement of construction of the Project. If there is any change to the specifications of the planned fixed noise sources, layout design, operation modes mitigation measures, or any other factors that would have implications on the fixed noise sources impact as concluded in the FNMP, an updated FNMP shall be submitted to the EPD no later than one month before the implementation of any such change.

15.4 Water Quality

15.4.1 Construction Phase

15.4.1.1 A small reclamation at Tsing Lung Tau (i.e. a land area of about 2.2ha) is required for the Project. Quantitative assessment of potential water quality impacts associated with marine construction works has been conducted, taking into account the critical periods for Suspended Sediment (SS) release, and also other concurrent projects.

15.4.1.2 Assessment results show that there will be no exceedance of criteria of SS, sedimentation rate, dissolved oxygen depletion and contaminant release at Water Sensitive Receivers (WSRs). Nevertheless, installation of silt curtain has been proposed as enhancement measures to further minimize potential water quality

impact throughout the dredging activities and construction of mud pit at Tsing Lung Tau during the construction phase of the Project.

15.4.1.3 Potential water quality impact due to other marine works is unlikely with proper implementation of good site practices.

15.4.1.4 Potential water quality impact due to land-based construction works has been reviewed. The potential sources of water quality impact during the construction phase are mainly from operation of temporary barging point and land-based construction activities including construction runoff, tunnelling and underground works, buildings construction, sewage from the workforce, construction works in close proximity of inland water, groundwater from contaminated areas and contaminated site run-off, diversion of watercourses and accidental spillage. With the mitigation measures such as Best Management Practices (BMPs) and water control strategies during tunnelling and underground works, adverse impacts are not anticipated during construction phase.

15.4.2 Operational Phase

15.4.2.1 During the operational phase of the Project, the major sources of potential adverse water quality impact include road and tunnel runoff discharged from paved roads and developments proposed under the Project, the sewage generated by the proposed administration buildings, wastewater generated from washing and maintenance operations, and the change in hydrodynamic regime due to the reclamation. However, with proper implementation of recommended mitigation measures, best practices and minimization of reclamation extent, adverse water quality impacts are not anticipated during the operational phase of the Project.

15.5 Waste Management

15.5.1 Construction Phase

15.5.1.1 Potential waste management implications from the generation of waste during the construction phase have been evaluated. General mitigation measures of good site practices, waste management measures and strategic mitigation measures, including the opportunity for on-site sorting, reusing Construction and Demolition (C&D) materials, etc., are devised to minimise the surplus materials to be disposed. Recommendations have been made for implementation by the contractor during the construction period to minimise waste generation and off-site disposal.

15.5.2 Operational Phase

15.5.2.1 Potential waste management implications from the generation of waste during the operational phase have been evaluated. The types of waste that would be generated during the operational phase have also been assessed. Recommendations have been made to ensure proper treatment and disposal of these wastes. Appropriate waste collector would be employed to handle general refuse, chemical waste and floating refuse generated during operational phase. Therefore, adverse environmental impacts form waste management during operational phase are not anticipated.

15.6 Land Contamination

15.6.1.1 Potential contaminative land uses within the assessment area and their potential impacts to future use have been examined. A total of 15 potentially contaminated

sites have been identified. However, due to actual site conditions, environmental site investigation (SI) could not be conducted during the EIA stage. In addition, as some of the sites are still in operation, it is considered not practicable to carry out the SI at this stage as the on-going activities would make the assessment result obsolete.

15.6.1.2 In view of this, further site visits at these 15 potentially contaminated sites are proposed when assess is available in order to identify the need for SI for any additional hot spots as a result of the on-going activities.

15.6.1.3 In addition, a re-appraisal would be required for the whole Project Areas to address any change in operation or land use that may give rise to potential land contamination issues.

15.6.1.4 Findings of the re-appraisal will be presented in a supplementary Contamination Assessment Plan (CAP). Upon approval of the supplementary CAP and completion of the SI works, a Contamination Assessment Report (CAR) would be prepared to present findings of the SI works. If contamination has been identified, a Remediation Action Plan (RAP) would be prepared to recommend specific remediation measures. Upon completion of the remediation works, if any, a Remediation Report (RR) would also be prepared to demonstrate that the clean-up is adequate. The CAR, RAP and RR would be submitted to EPD for approval prior to commencement of any construction /development works.

15.7 Hazard to life

15.7.1 Construction Phase

15.7.1.1 The Project is located within the 1km consultation zone of the Tai Lam Chung No.2 Chlorination Station, which is currently a Potentially Hazardous Installation (PHI). According to the latest information available, it will be delisted prior to the commencement of the construction works of the Project and will no longer classified as a PHI. Therefore, the hazard assessment for it is no longer required as there would not be any hazard-to-life concerns.

15.7.1.2 Drill-and-blast works are required for the tunnel construction and open blasting works are required for some of the slope works. According to the latest design, overnight storage of explosives on site is required. Three temporary explosive magazines at Lam Tei, Siu Lam and Pillar Point have been proposed, which would be share-used with TMB.

15.7.1.3 A quantitative risk assessment (QRA) has been conducted for the transportation, overnight storage and use of explosives. The QRA has also considered other concurrent projects (e.g. TMB) for the cumulative impacts. The assessment results show that the societal risk for the storage and transport of explosives as well as the use of explosives lie within the “ALARP” region, and the use of explosives lies is slightly within the “ALARP” region. For individual risk, compliance is anticipated. A detailed ALARP assessment has been conducted. Mitigation measures and best practices, such as provision of dedicated training programme and implementation of emergency response and training, have been recommended to minimize the risk even further.

15.7.1.4 Subject to the liaison of the three concurrent projects Route 11 (R11), Tuen Mun Bypass (TMB) and Lam Tei Underground Quarrying (LTUQ), a Hazard

Management Plan would be formulated with a view to aligning the understanding of the risk of the three projects so that all the working populations at Lam Tei Quarry area, which includes the workforce induced under the construction and operational stage of three projects, could be considered as on-site populations in the QRA for all the three projects. The measures stipulated in the Hazard Management Plan may include, but not limited to, the adjustment of the blasting schedules of the three projects to minimize the potential cumulative impact, provision of common trainings and drills to the workforce of all the three projects, etc. The Hazard Management Plan, which would be agreed among the three projects, would be submitted to EPD for agreement prior to the tender invitation of construction phases of R11, TMB and LTUQ, whichever is earlier.

15.7.2 Operational Phase

15.7.2.1 The Project does not fall into consultation zone of any PHIs. Besides, the operation of the Project does not involve any use of explosives. Hence, potential risk during operational phase is not envisaged.

15.8 Ecology

15.8.1 Construction Phase

Terrestrial Ecology

15.8.1.1 Aboveground works and hence direct impacts on natural habitats within TLCP would be avoided. Potential direct terrestrial ecological impacts arising from the Project during the construction phase include permanent and temporary terrestrial habitat loss, and potential direct impact on flora species of conservation importance (including *Aquilaria sinensis*, *Diospyros vaccinioides*, *Gnetum luofuense*, *Ixonanthes reticulata* and *Nepenthes mirabilis*) and fauna species of conservation importance of relatively low mobility (Hong Kong Cascade Frog).

15.8.1.2 No specific ecological mitigation measure will be required for the permanent or temporary loss of habitats of relatively lower ecological value. The permanent and temporary loss of mixed woodland, and permanent loss of watercourses will be mitigated by compensatory woodland planting (in case reinstatement of temporary mixed woodland loss is infeasible) and diversion of watercourses (with green channel design where applicable) respectively. With the adoption of mitigation measures, these ecological impacts arising from the potential loss of mixed woodland and watercourses will be mitigated to **minor** level.

15.8.1.3 To mitigate the remaining potential direct ecological impacts on flora and fauna species of conservation importance within the aboveground works area of the Project, pre-construction detailed vegetation survey and survey for aquatic and water-dependent fauna species of conservation importance, followed by onsite preservation, transplantation and/or compensatory planting of flora species of conservation importance, and/or translocation of aquatic and water-dependent fauna species of conservation importance, will be carried out.

15.8.1.4 Monitoring of the establishment of the compensatory woodland, implementation of preservation, transplantation, compensatory planting and/or translocation and the individuals to be preserved, transplanted, planted and/or translocated, will be implemented where applicable.

15.8.1.5 Potential indirect impacts during the construction phase include habitat fragmentation, aboveground construction disturbance, ground-borne vibration impact on the roosting bats inside Tai Lam Chung (TLC) Catchwater Tunnel Nos. 1, 5, 6, 7 and 8, light glare impact, water quality impact and potential groundwater drawdown, as well as potential indirect impact on recognized sites of conservation importance, important habitats, roosting grounds and species of conservation importance. These impacts are either **minor** or **insignificant** in nature or level and do not require specific ecological mitigation measure to be implemented to mitigate their effect, except ground-borne vibration impact on the roosting bats inside TLC Catchwater Tunnel Nos. 6 and 8.

15.8.1.6 Ground-borne vibration impact on the roosting bats inside catchwater tunnels will be mitigated by minimizing the level of ground-borne vibration as far as practicable. Following the Detailed Bat Monitoring and Remedial Plan to be submitted to relevant authorities before the commencement of the construction phase to 1) infer up to date information about roosting bats, confirm bat usage and record the variation in the diversity and number of roosting bats inside TLC Catchwater Tunnel Nos. 1, 5, 6, 7 and 8 during the pre-blasting, blasting, post-blasting and operational phases; 2) The information collected in 1) will be used to evaluate the impacts on the roosting bats inside TLC Catchwater Tunnel Nos. 1, 5, 6, 7 and 8, and provide grounded basis for adaptive review of the Alert, Action and Limit Levels of ground-borne vibration based on the monitoring data, including ground-borne vibration and bat monitoring data to be collected for TLC Catchwater Tunnel Nos. 6 and 8 during pre-blasting and blasting phases, which will take up to date information about bat roosts into account (Should TLC Catchwater Tunnel No. 5 be found to be occupied by roosting bats during the pre-blasting and blasting phases, the monitoring results related to TLC Catchwater Tunnel No. 5 should also be taken into account when reviewing the Alert, Action and Limit Levels.); 3) ensure effectiveness of the proposed mitigation measures and to avoid impacts on the bats roosting catchwater tunnels during the construction and operational phases of the Project and 4) help formulate remedial actions in case of need, bat monitoring surveys comprising acoustics survey, emergence survey, and bat roost survey covering overwintering season, breeding season and time gaps between overwintering and breeding season, and ground-borne vibration monitoring will be conducted for TLC Catchwater Tunnel Nos. 1, 5, 6, 7 and 8 during the pre-blasting, blasting, post-blasting and operational phases. The results will be summarized in Bat Monitoring Reports to be submitted during the pre-blasting, blasting and post-blasting phases. With the adoption of relevant bat mitigation measures, it is anticipated the ground-borne vibration impact to these bat roosts will be mitigated to an acceptable level.

15.8.1.7 Appropriate groundwater control measures and associated monitoring/site inspections would be implemented to minimize the groundwater infiltration during the tunnel construction and no adverse residual impacts on water quality impact are anticipated. As an additional precautionary measure, surface water level monitoring of natural watercourse in the vicinity of the underground tunnel works area should be conducted during the construction stage. Monitoring of surface water level of natural watercourse in the vicinity of the underground tunnel improvement works area, including those within Tai Lam Country Park, for one year should also be carried out during the construction and operational phases. Monthly monitoring should be conducted at watercourses where tunnels pass

underneath to monitor water depth and water velocity and remedial measures should be recommended, where necessary, if any abnormal significant decrease of the water level not likely relevant to natural stochastic factors (e.g. spate after heavy rainstorms) is arising from the Project.

Marine Ecology

15.8.1.8 There will be potential direct marine ecological impacts arising from the proposed 2.2ha reclamation site at Tsing Lung Tau for Tsing Lung Bridge during the construction phase include permanent (about 4.1ha) and temporary (about 13ha) loss of seabed and the marine waters above, and associated direct impact on species of conservation importance (including very low density of amphioxus *Branchiostoma belcheri*, and less than 1% coverage of hard coral, namely *Oulastrea crispata* and ahermatypic cup coral *Balanophyllia* sp. and gorgonian *Guaiagorgia* sp. identified within the reclamation site).

15.8.1.9 No specific marine ecological mitigation measures will be required for the permanent or temporary loss of seabed, man-made seawall or natural coastline with relatively low ecological value. Most of the species recorded throughout the benthic and subtidal surveys are considered common and widespread in Hong Kong, the permanent loss of 4.1ha sea habitat and temporary loss of about 13ha sea habitat caused by the current Project is considered **minor**.

15.8.1.10 Though two hard coral species and one gorgonian species (namely *Oulastrea crispata* and ahermatypic cup coral *Balanophyllia* sp., and one gorgonian *Guaiagorgia* sp.) recorded scattered (less than 1% coverage) along the subtidal coastal area within the reclamation site at Tsing Lung Tau, these species are common in the western Hong Kong waters, and they are generally adaptive and tolerance to extreme environment such as relatively high suspended solid level. The impact is considered **minor**, and no mitigation is required. Prior to the start of marine construction works, a detailed reconnaissance dive survey should be conducted as a precautionary measure to inspect if there are any additional colonies of hard and/or soft coral along the man-made seawall and semi-natural coastline within the reclamation site of Tsing Lung Tau. Should significant colonises are identified, effectiveness and feasibility of coral translocation will be assessed, and a detailed translocation proposal will be prepared if coral translocation is confirmed necessary.

15.8.1.11 As an enhancement measure, seawall enhancement design will be considered during the design stage of the reclamation site at Tsing Lung Tau for Tsing Lung Bridge. Possible ecological features should be considered to enhance the recruitment and colonization of the intertidal and subtidal fauna.

15.8.1.12 Potential indirect marine ecological impacts during the construction phase include impacts on marine water quality and disturbance due to increased marine traffic of works vessels. These impacts are either minor to insignificant in nature or level and do not require specific ecological mitigation measure to be implemented to mitigate their effect.

15.8.2 Operational Phase

15.8.2.1 During the operational phase, while direct ecological impact is not anticipated, indirect ecological impacts due to noise disturbance, ground-borne vibration disturbance, light glare, habitat fragmentation, impact on flight-lines and foraging habitats of ardeids, potential roadkill and bird collision, light glare impact, water

quality impact and shading effect on the eastern patch of Ching Uk Tsuen are all considered **minor** or **insignificant** in nature. The impact on recognized sites of conservation importance, important habitats, species of conservation importance during the operational phase will either be **minor** or **insignificant** in nature. No specific ecological mitigation measure is considered necessary.

15.8.2.2 Monitoring of the establishment of the compensatory woodland, monitoring on the effectiveness of the mitigation measures on groundwater infiltration, and monitoring of the ground-borne vibration and roosting bats inside Tai Lam Chung Catchwater Tunnel Nos. 1, 5, 6, 7 and 8, following the Detailed Bat Monitoring and Remedial Plan, will be conducted. The results will be summarized in Bat Monitoring Reports to be submitted during the operational phase.

15.9 Fisheries

15.9.1 Construction Phase

15.9.1.1 There will be direct fisheries impacts arising from the proposed reclamation site at Tsing Lung Tau for Tsing Lung Bridge of the Project during the construction phase, including permanent loss of about 4.1ha of fisheries habitats and fishing ground due to 2.2ha of reclamation area and 1.9 ha of seawall construction, and temporary loss of about 13ha of fishing ground due to marine works areas. Considering the permanent and temporary fisheries habitats and fishing ground loss is small compared to Hong Kong marine waters, and no other fisheries sensitive receivers will be encroached upon due to the Project, the direct fisheries impact is evaluated and ranked as minor.

15.9.1.2 Potential indirect fisheries impacts arising during the construction phase include deterioration of water quality caused by marine works, increased marine traffic, and underwater noise are evaluated and all considered negligible in nature. No specific fisheries mitigation measures for the direct and indirect fisheries impacts during the construction phase are considered necessary.

15.9.2 Operational Phase

15.9.2.1 During the operational phase, the proposed reclamation site at Tsing Lung Tau for Tsing Lung Bridge of the Project will arise direct fisheries impacts, including permanent loss of about 4.1 ha of fisheries habitats and fishing ground due to 2.2 ha of reclamation area and 1.9 ha of seawall construction, the direct fisheries impact is evaluated and ranked as minor. Other indirect impact to fisheries, such as the change of hydrodynamic and marine water quality are evaluated and considered negligible in nature. No specific fisheries mitigation measures for fisheries impacts during the operational phase are considered necessary.

15.10 Landscape and Visual

15.10.1.1 The Landscape Resources (LRs) and Landscape Character Areas (LCAs) as well as the Visually Sensitive Receivers (VSRs) within the Visual Envelop (VE) of the Project were identified and assessed.

15.10.1.2 With the implementation of proposed mitigation measures, it is predicted that in year 10 of operation there would be **moderate** residual impact on:

- LR-SK1 Secondary Woodlands in So Kwun Wat

- LR-NL4 Shrublands in North Lantau
- LCA-NL9 Ng Kwu Leng Peninsular Landscape
- VSR-LT2 Residents of Fu Tai Estate
- VSR-LT3 Residents of Lo Fu Hang
- VSR-LT5 Residents of Fuk Hang Tsuen
- VSR-LT6 Residents of The Sherwood
- VSR-LT8 Residents of Tsoi Yuen Tsuen
- VSR-LT11 Future Residents of Potential Residential Development at Brownfield Clusters in Lam Tei North and Nai Wai
- VSR-SK1 Trail Walkers on MacLehose Trail Section 10 (West)
- VSR-SK3 Residents of The Bloomsway
- VSR-SK4 Students and Staff at Harrow International School Hong Kong
- VSR-SK6 Residents of Aegean Coast
- VSR-SK8 Vehicle Travellers and Pedestrians on So Kwun Wat Tsuen Road
- VSR-SK9 Trail Walkers on MacLehose Trail Section 10 (East)
- VSR-SK10 Residents of So Kwun Wat Tsuen
- VSR-SK11 Residents of So Kwun Wat San Tsuen
- VSR-SK12 Visitors to Glorious Praise Fellowship (Hong Kong) Treatment Centre
- VSR-SK13 Vehicle Travellers on Siu Lam Road
- VSR-SK15 Residents of Palatial Coast
- VSR-SK16 Residents of Siu Lam
- VSR-SK21 Trail Walkers and Cyclists on Tai Lam Chung Reservoir Main Dam
- VSR-SK22 Pedestrians on Footbridge over Tai Lam Chung River
- VSR-SK24 Trail Walkers on Summit of Hill 141
- VSR-SK29 Residents of Tai Lam Chung Tsuen
- VSR-TL3 Residents of Hong Kong Garden, Vista Cove and L'Aquatique
- VSR-NL2 Trail Walkers on Summit of Fa Peng Teng
- VSR-NL8 Residents of Park Island

15.10.1.3 It is predicted that in year 10 of operation there would be **slight** residual impact on:

- LR-LT1 Secondary Woodlands in Lam Tei
- LR-LT2 Plantations in Lam Tei
- LR-SK2 Plantations in So Kwun Wat
- LR-SK4 Shrubland in So Kwun Wat

- LR-TL2 Plantations / Mixed Woodlands in Tsing Lung Tau
- LR-NL2 Plantations in North Lantau
- LCA-LT3 Lam Tei Rural Landscape
- LCA-SK4 Tai Lam Country Park Upland Landscape
- LCA-SK6 Siu Lam and Tai Lam Chung Foothill Landscape
- LCA-SK7 Tai Lam Chung River Valley Landscape
- VSR-LT1 Residents of Parkland Villas
- VSR-LT4 Vehicle Travellers on Yuen Long Highway (Eastbound)
- VSR-LT7 Vehicle Travellers on Kong Sham Western Highway (Southbound)
- VSR-LT9 Vehicle Travellers on Yuen Long Highway (Westbound)
- VSR-SK2 Vehicle Travellers on Tuen Mun Road
- VSR-SK5 Residents of Hong Kong Gold Coast
- VSR-SK7 Residents of Avignon
- VSR-SK14 Trail Walkers on Tai Lam Chung Reservoir Subsidiary Dam at Siu Lam Road,
- VSR-SK23 Vehicle Travellers and Pedestrians on Castle Peak Road – Tai Lam
- VSR-SK25 Trail Walkers at South of To Hang Tung
- VSR-SK26 Vehicle Travellers on Castle Peak Road – So Kwun Wat
- VSR-SK27 Students and Staff at PLK Women's Welfare Club Western District Fung Lee Pui Yiu Primary School and S.T.F.A. Lee Kam Primary School
- VSR-SK30 Students and Staff at Hong Kong Customs College
- VSR-SK31 Staff and Visitors at Tai Lam Correctional Institution
- VSR-TL1 Vehicle Travellers on Tuen Mun Road (Westbound)
- VSR-TL2 Residents of Bellagio and Ocean Pointe
- VSR-TL4 Vehicle Travellers and Pedestrians on Castle Peak Road – Tsing Lung Tau (Eastbound)
- VSR-TL5 Vehicle Travellers on Tuen Mun Road (Eastbound)
- VSR-TL11 Pedestrians on Footbridge across Castle Peak Road – Tsing Lung Tau
- VSR-TL12 Travellers in Tsing Lung Tau Ferry Pier
- VSR-TL13 Travellers in Sham Tseng Public Pier
- VSR-TL14 Residents of Sea Crest Villa Phase 4
- VSR-NL1 Vehicle Travellers on North Lantau Highway (Westbound)

- VSR-NL3 Vehicle Travellers at Lantau Link Toll Plaza
- VSR-NL4 Travellers in Ma Wan Public Pier
- VSR-NL5 Vehicular Travellers on Kap Shui Mun Bridge
- VSR-NL6 Visitors at Sunny Bay Promenade
- VSR-NL7 Maritime Travellers in Ha Pang Fairway
- VSR-NL9 Future Users at Planned Sunny Bay Reclamation Area

15.10.1.4 The residual impact on other LRs, LCAs and VSRs would be further reduced to insubstantial when the proposed compensatory planting, buffer planting and woodland mix planting become mature in year 10 of operation.

15.10.1.5 It is estimated there are total approximate 25,720 nos. of existing trees within the 100m landscape impact assessment area.

15.10.1.6 There is no Registered OVT within the 100m landscape impact assessment area.

15.10.1.7 For Tree of Particular Interest (TPI), there are approximate 63 nos. *Ixonanthes reticulata* (size range: 5 to 22m height, 100 to 570mm DBH, 2 to 12m crown) identified within and near the works area within LR-SK1 (Secondary Woodlands in So Kwun Wat) (**Figure 11.5.3** and **Figure 11.5.4**) and LR-SK11 (Developed Areas in So Kwun Wat), of which 8 nos. of *Ixonanthes reticulata* would be affected by the proposed work and would be proposed for removal. 2 nos. of mature *Ficus spp*. with DBH of over 1m at other locations) are recorded within the 100m landscape assessment area, are will not be affected.

15.10.1.8 Saplings of *Aquilaria sinensis*, a species of conservation interest, are identified in LR-LT1 Secondary Woodlands in Lam Tei and LR-TL1 Secondary Woodlands in Tsing Lung Tau, and will not be affected.

15.10.1.9 8 nos. likely planted saplings of *Aquilaria sinensis*, a species of conservation interest, are identified in LR-SK12 Carriageway and roadside planter in So Kwun Wat will be affected by the road widening works and the construction of So Kwun Wat Link Road.

15.10.1.10 An estimated approximate 100 nos. of affected trees, mostly roadside amenity tree plantings, are considered suitable for transplanting. The exact quantity, tree condition, proposed recommendations as well as future receptor locations of these trees shall be further reviewed in the formal TPRP to be prepared and submitted in the Detailed Design stage.

15.10.1.11 An estimated approximate 5,077 nos. of affected trees in tree groups, together with 8 nos. of TPI, namely *Ixonanthes reticulata* in Fung Shui Woodland near So Kwun Wat would be affected, and proposed to be removed due to low "Suitability for Transplanting" based on preliminary assessment at this stage.

15.10.1.12 With the implementation of mitigation measures, the residual visual impacts would be insubstantial to substantial by operation day 1. By operation year 10, when the mitigation measures have matured and taken effect, the residual visual impacts for the vast majority of VSRs would be insubstantial to moderate.

15.10.1.13 Due to the large scale of the proposed works, it is inevitable that despite all the recommended mitigation measures, it would not be able to fully alleviate the fundamental change of visual character at some locations. While in terms of

effectiveness of mitigation measures, it is considered that for visual amenity purpose, improving the appearance of new infrastructures together with landscape planting or screening measures and lighting control would help to alleviate the adverse visual impacts from the new development. In accordance with the criteria and guidelines for evaluating and assessing impacts as state in Annex 10, Clause 1.1(c) of the EIAO-TM, overall, it is considered that the residual landscape and visual impacts of the proposed development are acceptable with mitigation during the construction and operational phases.

15.11 Cultural Heritage

15.11.1 Terrestrial Archaeology

15.11.1.1 No sites of archaeological interest would be affected by the Project and associated works. An area of archaeological potential was identified at the lower slopes to the east of Area A at the lower slopes to the north of Lam Tei Quarry within the works area. However, due to restrictions in accessibility, it is recommended that the survey will be undertaken when access is available but prior to the site formation and construction phases.

15.11.1.2 Furthermore, if antiquities or supposed antiquities are identified during the construction works, the works should be suspended, and the project proponent should notify AMO immediately for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO.

15.11.1.3 Adverse terrestrial archaeological impact is not anticipated during operational phase.

15.11.2 Built Heritage

15.11.2.1 The identified built heritage sites are located separated from the proposed and associated works with the exception of Grade 3 Former Perowne Barracks, Gurkha Temple by some distances. Mitigation measures required during and after the construction phase include a condition survey before and after the construction phase, ongoing vibration and building movement monitoring, and any other monitoring identified in the condition survey and a buffer zone to provide physical separation between the heritage site from the works.

15.11.2.2 Furthermore, if buildings / structures both at-grade and underground with potential heritage value that would likely be affected by the development are identified during the construction works, the works should be suspended, and the project proponent should notify AMO immediately for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO.

15.11.2.3 Adverse impact on built heritage is not anticipated during operational phase.

15.11.3 Marine Archaeology

15.11.3.1 There is no shipwreck identified in the Study Area. A marine archaeological investigation (MAI) was previously conducted under “Route 10 – North Lantau to Tsing Lung Tau Section” project, which concluded that there was no marine archaeological resource within the respective study area, which partially overlapped with the Study Area of the Project. The Study Area is located along the

Ha Pang Fairway, which is heavily utilized by marine vessels. After consulting with Marine Department, it is recommended to conduct the marine diver survey when fencing off of the diving area can be safely implemented but prior to any reclamation works, i.e. during the detailed design stage. In addition, the anomalies identified from the geophysical survey shall be well protected from any marine ground investigation (GI) works, where the marine GI works would be carried out prior to the reclamation works. Should there be any marine archaeological resources identified during the marine GI works and MAI, proper mitigation measures including but not limited to rescue excavation shall be proposed for agreement with AMO before the commencement of reclamation works.

15.11.3.2 Adverse impact on marine archaeology is not anticipated during operational phase.

15.12 Environmental Monitoring and Audit

15.12.1.1 All necessary environmental monitoring and audit will be conducted during both construction and operational phases to proper implementation of mitigation measures, and ensure compliance with relevant statutory requirements.