

Highways Department

**Route 11 (Section between Yuen Long and
North Lantau)**

**Environmental Impact Assessment Executive
Summary (English)**

Final | September 2023

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 284104

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Figure 1.1 Location of the Project & Interfacing Projects

1 Introduction

1.1 Background

- 1.1.1.1 The objective of Route 11 (Section between Yuen Long and North Lantau) (hereinafter named as the Project) is to enhance the connectivity between the Northwest New Territories (NWNT) and North Lantau to meet the future traffic demands generated by the future developments in both regions and also the increasing cross-boundary activities. Route 11 will be a strategic highway to support the proposed developments in the NWNT. It will also provide the third vehicular access to Lantau in addition to the existing Lantau Link (LL) and the Tuen Mun-Chek Lap Kok Link (TM-CLKL).
- 1.1.1.2 In September 2021, Highways Department (HyD) commissioned Arup to carry out Agreement No. CE 13/2021 (HY) Route 11 (Section between Yuen Long and North Lantau) - Investigation to examine and review the Preferred Alignment for the Project, formulate a Recommended Alignment developed under the feasibility study for the Project, and work out the preliminary design details of the Recommended Alignment of Route 11 and the associated works.

1.2 Site Location and History

- 1.2.1.1 The Project will have a total length of approximately 12km, covering areas in Lam Tei, So Kwun Wat, Tai Lam, Tsing Lung Tau and North Lantau. The alignment of the Project is shown in **Figure 1.1**.
- 1.2.1.2 The Project has a similar mainline layout of the Public Works Programme Item No 519TH “Route 10 – North Lantau to Yuen Long Highway (YLH)” (Ex-Route 10). The feasibility study as well as the investigation and preliminary design of Ex-Route 10 were completed in 1998 and 2002 respectively. Detailed design for Ex-Route 10 was commenced in 2000 but had not been completed in view of the proposed implementation of the Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (now is replaced by the proposed Tuen Mun Bypass (TMB)), with Route 10 as a future option after review of the traffic and transport infrastructure in the Northwest New Territories (NWNT) and Lantau in 2002. As the above studies were carried out some 20 years ago, much information had become outdated, and the technical feasibility of the Project needs to be assessed again.
- 1.2.1.3 HyD commissioned a Feasibility Study (FS) of the Project in May 2018 in order to take account of the latest planning and development parameters. The FS has established the technical feasibility of the Project, examined and evaluated possible alignment options and determined the Preferred Alignment for the Project.
- 1.2.1.4 Subsequently, HyD commissioned an Investigation consultancy of the Project in September 2021, to examine and review the Preferred Alignment for the Project, formulate a Recommended Alignment for the Project, and work out the preliminary design details of the Recommended Alignment of the Project and the associated works. The scope of the consultancy also includes the preparation of the Environmental Impact Assessment (EIA) for the Project under the Environmental Impact Assessment Ordinance (EIAO).

1.3 Scope of the Project

1.3.1.1 **Figure 1.1** shows the latest alignment and locations of the following key elements.

- a) construction of Lam Tei Quarry Interchange, which comprises slip roads and viaducts, connecting the proposed Lam Tei Tunnel to Kong Sham Western Highway, Yuen Long Highway and the proposed TMB (under separate project);
- b) construction of Lam Tei Tunnel, which is an approximately 4.2 km long dual 3-lane carriageway tunnel, connecting the proposed Lam Tei Quarry Interchange and So Kwun Wat Interchange;
- c) construction of So Kwun Wat Interchange, which comprises slip roads and viaducts, connecting the proposed Lam Tei Tunnel, So Kwun Wat Link Road and Tai Lam Chung Tunnel (North Section);
- d) construction of So Kwun Wat Link Road, which comprises an approximately 2.0 km long dual 2-lane carriageway tunnel and associated slip roads and viaducts, connecting to Tuen Mun Road (TMR), So Kwun Wat Road, and the proposed So Kwun Wat Interchange;
- e) construction of Tai Lam Chung Tunnel (North Section) which is an approximately 0.4km long dual 4-lane carriageway tunnel, a viaduct crossing Tai Lam Chung River, and Tai Lam Chung Tunnel (South Section) which is another tunnel to the east of Tai Lam Chung River and an approximately 1.7km long dual 4-lane carriageway tunnel, connecting the proposed So Kwun Wat Interchange and Tsing Lung Tau Interchange;
- f) construction of Tsing Lung Tau Interchange, which comprises slip roads, viaducts and tunnel, connecting the proposed Tai Lam Chung Tunnel (South Section) and Tsing Lung Bridge to TMR;
- g) construction of Tsing Lung Bridge, which is an approximately 1.9 km long dual 4-lane carriageway suspension bridge, crossing over the Ha Pang Fairway and connecting the proposed Tsing Lung Tau Interchange and North Lantau Interchange, with reclamation of approximately 2.2 ha for construction of bridge tower at Tsing Lung Tau;
- h) construction of North Lantau Interchange, which comprises slip roads, viaducts and tunnels, connecting Tsing Lung Bridge to North Lantau Highway, LL, the proposed Road P1 (under separate project), the proposed Tsing Yi-Lantau Link (under separate project) and the proposed Hong Kong Island West-Northeast Lantau (HKIW-NEL) Link (under separate project);
- i) re-alignment of an approximately 1.4 km long section of TMR at Tsing Lung Tau;
- j) modification / realigning of the existing interchanges / roundabouts / roads, where appropriate (e.g. widening of an approximately 0.4 km long Tai Lam Chung Road);
- k) reprovision / modification of existing bridges, underpasses, footbridges, access roads, crossings affected;

- l) construction of associated administration buildings, ventilation buildings;
 - m) construction of temporary explosive magazines in Lam Tei Quarry, Siu Lam and Pillar Point; and
 - n) associated geotechnical works, ground investigation (GI) works, drainage works, natural terrain hazard mitigation works, sewerage works, traffic aids, directional signs, street lightings, Traffic Control and Surveillance System, Electrical and Mechanical (E&M) works, environmental mitigation measures, landscaping works, Vessel Impact Protection System, dehumidification systems for cables and decks, and services systems for inspection, maintenance, structural health monitoring and management of the suspension bridge.
- 1.3.1.2 The EIA report has included locations of the temporary work sites, works areas, construction haul roads and barging facilities of the Project for supporting the construction of the Project based on the latest information at the time of writing.

1.4 Scope of this EIA Report

- 1.4.1.1 After the submission of Project Profile (No. PP-637/2022), pursuant to Section 5(7)(a) of the EIA Ordinance, the Director of Environmental Protection issued an EIA Study Brief (No.: ESB-352/2022 dated 25 February 2022) for the EIA study. This EIA study focuses on assessing the potential impacts associated with the construction and operation of the Project in accordance with the requirements of EIA Study Brief and the Technical Memorandum on Environmental Impact Assessment Process.

1.5 Purpose of this Executive Summary

- 1.5.1.1 This Executive Summary (ES) highlights the key information and findings of the EIA Study of Route 11 (Section between Yuen Long and North Lantau).

2 Project Description

2.1 Objective of the Project

2.1.1.1 The objective of the Project is to enhance the connectivity between NWNT and North Lantau to meet the future traffic demands generated by the future developments in both regions and also the increasing cross boundary activities. The Project will be a strategic highway to support the proposed developments in the NWNT.

2.2 Need of the Project

2.2.1.1 According to the traffic impact assessment, in the absence of the Project, TMR (Siu Lam Section and Sham Tseng Section), Tai Lam Tunnel, Ting Kau Bridge, and LL will be over capacity during morning peak hours in 2036.

2.2.1.2 The Project will offer an alternative route connecting the NWNT and the urban areas. It is anticipated that traffic conditions of TMR (Siu Lam Section and Sham Tseng Section), Tai Lam Tunnel, Ting Kau Bridge and LL during morning peak hours in 2036 will be significantly improved after commissioning of the Project and the associated major roads, resulting in reduced travel time between NWNT and urban areas.

2.2.1.3 In addition, the Project will provide an alternative commuting route with the proposed TYLL. This will enhance the resilience of the NWNT traffic network to traffic incidents and emergencies on major roads. By having multiple access points and connections to major roads in NWNT, the Project and TYLL can serve as a dependable route for diverting traffic towards urban areas during such situations. Furthermore, the Project and TYLL will serve as a strategic route linking NWNT and the urban areas to Lantau, enhancing the resilience to the road network connecting to the airport.

2.3 Scenarios "With" and "Without" the Project

2.3.1 Consideration of "Without" Project Scenario

2.3.1.1 Without the implementation of the Project, much of the traffic from various new and existing developments in NWNT commuting to Tsuen Wan, West Kowloon and Hong Kong Island, etc. would need to use the existing TMR, or Tai Lam Tunnel with Ting Kau Bridge. According to the traffic impact assessment, TMR, Tai Lam Tunnel, and Ting Kau Bridge, would not have sufficient capacity to handle the future traffic demand. Hence, it is anticipated that these major roads would experience congestion during peak hours, which would lead to higher vehicular traffic emissions as the traffic speed decreases during traffic congestion. Moreover, as it was anticipated that the traffic volume during non-peak hours would increase, potential adverse impacts on air quality and noise to the neighbouring sensitive receivers would also be more significant.

2.3.2 Consideration of "With" Project Scenario

2.3.2.1 With the implementation of the Project, the traffic from various new and existing developments in NWNT commuting to Tsuen Wan, West Kowloon and Hong

Kong Island, etc. could use the Route 11 as an alternative route to reach Tsing Lung Tau and North Lantau swiftly instead of relying on TMR or Tai Lam Tunnel with Ting Kau Bridge. From there, the traffic can take suitable routes to reach Tsuen Wan, West Kowloon and Hong Kong Island as needed. As a result, traffic conditions on TMR, Tai Lam Tunnel, Ting Kau Bridge and LL would be relieved, and the associated environmental impacts along this main traffic corridor would also be improved. In addition, the Project has proactively avoided any aboveground works within Tai Lam Country Park (TLCP) to minimize environmental impacts.

- 2.3.2.2 By adopting underground tunnel form for all sections within TLCP, no habitat within TLCP will be lost or fragmented and no direct impact will be exerted on flora and fauna within TLCP, including those of conservation importance. Indirect impacts due to the construction activities are also mitigated by proper planning of construction works and other mitigation measures.

2.4 Consideration of Alternative Options

- 2.4.1.1 Due considerations have been given in formulating options to address the environmental challenges in the Project. The hierarchy of “Avoidance, Minimization and Mitigation” has been fully adopted in the process to protect the environment as much as practicable.

2.4.2 Avoidance of Above-ground Works within TLCP and other Recognized Sites of Conservation Importance

- 2.4.2.1 In particular, while the alignment would be unavoidably located in TLCP for the direct connection between Lam Tei, So Kwun Wat and Tsing Lung Tau, tunnel option (i.e. Lam Tei Tunnel, So Kwun Wat Link Road and Tai Lam Chung Tunnel (South Section)) has been adopted within TLCP to avoid any aboveground works and thus no direct impact to TLCP.

- 2.4.2.2 The Project has also sought to avoid direct impact on recognized sites of conservation importance (i.e. “Conservation Area”, Siu Lang Shui Site of Special Scientific Interest), important habitats (i.e. Siu Lang Shui Butterfly Habitat, Ma Wan Egret, Day Roost and Night Roost, and Fung Shui Woodlands) and, roosting ground (i.e. bat roosts inside Tai Lam Chung (TLC) Catchwater Tunnel Nos. 5, 6 and 8) as far as possible.

2.4.3 Formulation of Alignment Options

- 2.4.3.1 During formulation of the alignment options, due consideration has been made to site constraints, such as site of archaeological interest, permitted burial grounds, and planned and existing residential developments. Therefore, most portions of main alignment are in form of viaducts/ elevated roads, which aim to reduce land impacts and provide more separation from the sensitive receivers.

- 2.4.3.2 Full tunnel option between Lam Tei and North Lantau was explored, but it is not considered viable due to:

- Need for connectivity of the Project at particular locations such as Tsing Lung Tau and So Kwun Wat;
- Significant variation of terrain, including hilly areas and across marine sea; and

- Significant reclamation required to connect the tunnel to the existing roads at North Lantau at a favourable gradient to LL and North Lantau Highway.
- 2.4.3.3 The full tunnel running from +40mPD at Lam Tei to below Ha Pang Fairway (deepest seabed level at -35mPD) and then climbing up to +60mPD at North Lantau require drastic change in road levels along the alignment. It also requires either steep or long tunnel deep below ground to connect to at-grade roads at the proposed interchanges. It is not favourable from highway design and traffic operation points of view.
- 2.4.3.4 On the above basis, other alignment options comprising sections of tunnels, viaducts, at-grade roads and suspension bridge have been considered for the Project. In consideration of the alignment options, the whole Project is sub-divided for 3 sections:
- Northern Section (Tuen Mun to So Kwun Wat);
 - Central Section (So Kwun Wat to Tai Lam Chung); and
 - Southern Section (Tai Lam Chung to North Lantau).
- 2.4.3.5 The details of the alignment options (including benefits and dis-benefits) are given in Section 2 of the EIA report. Key elements are highlighted in below paragraphs.
- 2.4.4 Northern Section (Tuen Mun to So Kwun Wat)**
- 2.4.4.1 Three alignment options for the northern section (namely Option FS(LT), Option LT1 and Option LT2) have been considered. Option LT2 is selected as the recommended option. Option LT2 has more compacted layout developed for Lam Tei Quarry Interchange to achieve a reduced footprint, with the northern tunnel portal of Lam Tei Tunnel located outside TLCP. It provides connection with the proposed TMB.
- 2.4.4.2 Option FS(LT) cannot accommodate the interfacing projects that were not proposed when developing the alignment in the feasibility study stage, and has larger encroachment on Fuk Hang Tsuen and Permitted Burial Ground No. BURG22. Option LT1 will be in conflict with the proposed underground quarry, and limit the future land use of Lam Tei Quarry.
- 2.4.5 Central Section (So Kwun Wat to Tai Lam Chung)**
- 2.4.5.1 Five alignment options for the central section (namely Option FS(SL), Option SL1, Option SL2, Option SL3 and Option SL4) have been considered. Option SL1 is selected as the recommended option. Option SL1 will have comparatively longer tunnel length. However, most of the constraints and impacts can be avoided under this option, including TLCP, MacLehose Trail, Fung Shui Woodlands, So Kwun Wat Tsuen, So Kwun Wat San Tsuen, other residential premises at Tuen Mun East, So Kwun Wat (east part) SAI and the Permitted Burial Ground No. BURG19.
- 2.4.5.2 Option FS(SL) has direct encroachment on TLCP, MacLehose Trail, Fung Shui Woodlands, So Kwun Wat (east part) SAI and the Permitted Burial Ground No. BURG19. It will be located right next to So Kwun Wat Tsuen and So Kwun Wat San Tsuen, leading to more significant environmental nuisances to the villages.

2.4.5.3 Other options (i.e. Option SL2, Option SL3 and Option SL4) attempted to avoid the constraints encountered by Option FS(SL). However, they will be located close to various residential premises, leading to more significant environmental impacts.

2.4.6 Southern Section (Tai Lam Chung to North Lantau)

2.4.6.1 Eight alignment options for the southern section (namely Option FS, Option A1, Option A2, Option B1, Option B2, Option C1, Option C2 and Option D) have been considered. Option A1 is selected as the recommended option. It will provide direct traffic routing between Tai Lam Chung and North Lantau. Option A1 will avoid reclamation for tower of Tsing Lung Bridge at North Lantau side. It will reduce slope cutting at Ng Kwu Leng, and is compatible with Kap Shui Mun Bridge lower deck entry, MTR substation and other concurrent projects (e.g. TYLL and HKIW-NEL Link). It will also avoid aboveground works within TLCP. As Option A1 at Tai Lam and Tsing Lung Tau is mainly in form of tunnel section, it will minimize potential environmental impacts to residential premises at Tai Lam Chung area.

2.4.6.2 Option FS requires reclamation at both Tsing Lung Tau and North Lantau sides and also extensive slope cutting at Ng Kwu Leng. Its southern portal and its associated earthwork of Tai Lam Chung Tunnel will likely be encroached on TLCP. It is not compatible with Kap Shui Mun Bridge lower deck entry, MTR substation and other concurrent projects (e.g. TYLL and HKIW-NEL Link).

2.4.6.3 Option A2, Option C1 and Option C2 are with larger separation from with the TLC Catchwater Tunnel No. 6 to minimize the impact to the catchwater tunnel and the bat habitats. However, they will be either too steep for trunk road with engineering design constraint, or encroaching upon Tai Lam Chung Tsuen or CSD's Tai Lam Correctional Institution.

2.4.6.4 Option B1 and B2 will require substantial slope cutting along northern hillside of TMR, leading to significant natural terrain hazard risks. Lane closure will be required during construction leading to major impact to busy traffic along TMR. It will likely be encroached on TLCP at the eastern end of connection with Tuen Mun Road. As the route between Tai Lam Chung and Tsing Lung Tau will be longer and less direct, it will lead to longer travel times and potential environmental impacts to residential premises at Tai Lam Chung area.

2.4.6.5 The highway design with subsea tunnel of Option D in terms of road gradients and connection is considered unfavourable, and longer travel times will be required for the longer and steeper ramps. Substantial reclamations will be required to connect the tunnel to the roads at North Lantau at a favourable gradient. Considerable amount of dredged materials will also be generated from tunnel construction. If immersed tube tunnel construction method is adopted, marine navigation will be seriously affected, and water quality impact is also anticipated.

2.4.6.6 The key design considerations to tackle all the environmental challenges are summarised in **Table 2.1**.

Table 2.1 Key design considerations and the associated environmental benefits

Design Approach	Key Design Considerations	Associated Environmental Benefits
Avoidance of aboveground works within TLCP and water gathering grounds	<ul style="list-style-type: none"> • Adopt suitable tunnel alignments for the sections across TLCP, such that no aboveground works within TLCP are required • Adopt suitable engineering design during drill-and-blast tunnelling to avoid adverse impacts on the water gathering ground 	<ul style="list-style-type: none"> • Avoided direct habitat loss and disturbance within TLCP
Avoidance of direct impact on butterfly overwintering ground at Siu Lang Shui	<ul style="list-style-type: none"> • Maintain a sufficient separation distance from the butterfly overwintering ground at Siu Lang Shui from the proposed explosive magazine site at Pillar Point • Minimize large scale of engineering works (e.g. site formation works) by selecting the proposed explosive magazine site at Pillar Point, which was substantially formed by previous projects 	<ul style="list-style-type: none"> • Avoided direct impacts on the butterfly overwintering ground • Minimised habitat loss through proper site selection
Avoidance of direct impacts to eastern patch of Ching Uk Tsuen Fung Shui Woodland (Fung Shui Woodland at So Kwun Wat)	<ul style="list-style-type: none"> • Elevate the vertical alignment near the eastern patch of Ching Uk Tsuen Fung Shui Woodland (CUTFSW) at So Kwun Wat to increase the headroom clearance as much as technically feasible • Adjust the horizontal alignment to avoid overlapping with the Fung Shui Woodland as much as practicable • Avoid columns and associated works areas within the Fung Shui Woodland • Separate the northbound and southbound viaduct structures to provide a 7m separation between the viaduct structures, which would allow a longer duration of direct sunlight to the Fung Shui Woodland underneath 	<ul style="list-style-type: none"> • Avoided direct impacts on the Fung Shui Woodland • Minimised disturbance to the Fung Shui Woodland
Minimization of disturbance to bat roosting habitats	<ul style="list-style-type: none"> • Increase separation distances of the tunnel alignment from WSD catchwater tunnels with bat habitats • Adjust tunnel construction methodology (i.e. review explosive charge weight of drill-and-blast method and explore alternative tunnelling methods) in close vicinity of WSD tunnels with bat habitats 	<ul style="list-style-type: none"> • Avoided direct impacts on bat roosts in WSD tunnels • Minimised disturbance to bat roosts in WSD tunnels

Design Approach	Key Design Considerations	Associated Environmental Benefits
Avoidance of direct impacts on Sites of Archaeological Interest (SAI), Graded Buildings and Potential Marine Archaeology	<ul style="list-style-type: none"> • Avoid encroachment on SAI and graded buildings • Adopt a viaduct alignment for the section running across So Kwun Wat Perowne Barrick SAI and avoid temporary works areas within the SAI • Avoid all the anomalies by allowing sufficient setback distance (around 50m) for marine ground investigation 	<ul style="list-style-type: none"> • Avoided direct impact on SAI and graded buildings • Avoided direct impact on anomalies with unknown marine archaeological potential
Avoidance of reclamation at To Kau Wan in North Lantau	<ul style="list-style-type: none"> • Remove the original scheme of reclamation at To Kau Wan in North Lantau through optimization of Project alignment and engineering design 	<ul style="list-style-type: none"> • Avoided seabed loss at North Lantau, and the associated water quality impacts during the construction stage
Minimization of reclamation and dredging extents for the reclamation in Tsing Lung Tau	<ul style="list-style-type: none"> • Optimise the extents of reclamation and dredging for the reclamation in Tsing Lung Tau 	<ul style="list-style-type: none"> • Minimised construction phase water quality impacts at Tsing Lung Tau • Minimised the amount of sediment to be dredged and disposed • Minimised the numbers of corals to be directly affected
Confinement of filling works within seawall for the reclamation in Tsing Lung Tau	<ul style="list-style-type: none"> • Commence filling works upon the full completion of the perimeter seawall for the reclamation in Tsing Lung Tau 	<ul style="list-style-type: none"> • Minimised the possibility of fill materials and fine suspended solids from being discharged into the open sea in an unacceptable manner
Minimization of slope cutting	<ul style="list-style-type: none"> • Minimise slope cutting through refinement of alignment of the Project 	<ul style="list-style-type: none"> • Minimised disruption and impacts to the landscape resources and characters • Minimised the number of trees to be impacted • Minimised the loss of habitats, especially those of relatively higher ecological value, such as mixed woodland • Minimised the amount of excavation spoil and

Design Approach	Key Design Considerations	Associated Environmental Benefits
		construction waste generated

2.4.7 Recommended Alignment for the Project

2.4.7.1 The recommended alignment option (as presented in **Figure 1.1**) is summarised in **Table 2.2**.

Table 2.2 Summary of Recommended Alignment Option for the Project

Sections	Recommended Alignment Option
Northern Section (Tuen Mun to So Kwun Wat)	LT2
Central Section (So Kwun Wat to Tai Lam Chung)	SL1
Southern Section (Tai Lam Chung to North Lantau)	A1

2.5 Construction Methodology

2.5.1 Construction Methodology for Tunnels

2.5.1.1 The primary method of construction for the Route 11 tunnels and cuttings is expected to be by drill and blast method which utilises controlled blasting to excavate hard rock. Compared with mechanical breaking of the rock by hydraulic excavator, the drill and blast method can significantly shorten the period for the tunnel excavation. The shortened construction period is not only financially beneficial for the construction of Route 11 tunnels but also minimize disturbance to the interfacing WSD catchwater tunnels through reducing the duration of exposure to vibration at the WSD tunnel. Alternative methods using tunnel boring machine (TBM) and non-explosive chemical expansion agent have also been considered for construction of the tunnels. However, TBMs of the size required for dual 3-lane or dual 4-lane tunnels for hard rock ground condition are not currently available on the market and non-explosive chemical expansion agent is not effective in hard rock excavation.

2.5.2 Construction Methodology for Reclamation

2.5.2.1 It is intended to avoid dredging as far as possible for reclamation. However, based on the latest GI result, marine deposit found locally at the proposed reclamation area is roughly 3m to 4m deep. Owing to its shallowness of marine deposit, undredged method like deep cement mixing technique and construction of stone column are not effective in strengthening the seabed for seawall construction.

2.5.2.2 A mud pit is proposed at the centre of the proposed reclamation area to receive the dredged marine deposit. The fully dredged trench will then be formed and filled with sand and/or rockfill for construction of seawall. Armour stones will be placed on the sloping seawall surface as protection to the seawall.

2.5.3 Construction Methodology for Tsing Lung Bridge

2.5.3.1 Construction of Tsing Lung Bridge involve construction of foundations and anchorages. All foundation and substructures of Tsing Lung Bridge and approach

viaducts are located on land or reclaimed area. No marine works is required in addition to the reclamation works. Foundations and substructures will be cast-in-situ with erection of falsework and formwork and rebar fixing. Bridge towers can be made of concrete or steel. Concrete towers will be cast-in-situ with either slip forms or jump forms while steel towers will be segmental pre-fabricated off-site and erected on-site.

- 2.5.3.2 Upon completion of towers and anchorages, cables will be threaded and installed, followed by installation of suspenders and bridge deck segment erection. The bridge deck will be prefabricated off-site and transported to the site by barge for lifting and installation. Appropriate temporary arrangements for marine navigation will be implemented during installation of the deck segments.

2.5.4 Construction Methodology for Viaducts

- 2.5.4.1 Generally, precast concrete segmental viaduct construction method would be adopted as far as possible to minimise in-situ concreting works on-site. Under this method, the decks will be formed from precast concrete segments which will be manufactured at the casting yard off-site and stitched together at their final positions on-site. This method will minimise the quantities of construction and demolition (C&D) materials, and also minimise the extent and duration of construction activities required on-site.

- 2.5.4.2 On the other hand, consideration is also given to the site constraints in terms of accessibility for delivery of the precast deck segments. Where space is limited for access, cast-in-situ using formwork and falsework would be adopted as an alternative option.

2.5.5 Construction Methodology for Rock Cuttings

- 2.5.5.1 Open blasting is intended for large rock cuttings at Lam Tei Quarry, Tsing Lung Tau and North Lantau in view of cost and time benefits to the Project. The selected locations for open blasting are predominately in low population density areas. Additional blasting screens, blast cages and blast mats will be provided alongside a well-designed surface blast design to control the effects of flyrock.

2.5.6 Construction Methodology for Buildings

- 2.5.6.1 The administration buildings and ventilation buildings will be typically designed as reinforced concrete structure and constructed by cast-in-situ method using formwork and falsework. Subject to the ground conditions, bored piles or raft footing foundation is envisaged. No percussive piling is envisaged. As the ventilation requirement and schedule of areas of each building is different, there is no economy of scale adopting modular construction.

2.5.7 Construction Methodology for Other Project Elements

- 2.5.7.1 The Project also consists of construction of other temporary structures including temporary explosive magazines. The details of the construction methodologies are given in Section 2 of the EIA report.

2.6 Tentative Implementation Programme

- 2.6.1.1 The construction phase of the Project, including reclamation works, site formation for Tsing Lung Bridge anchorages, tunnelling, roads and viaducts construction, road realignment of TMR, ventilation buildings and administration buildings

construction, and Tsing Lung Bridge construction, will be tentatively commenced in 2026 Q1 and completed in 2033 Q4. The tentative phasing of major construction works is outlined in **Table 2.3**.

- 2.6.1.2 Sequence of works will be further reviewed during detailed design stage and construction stage. Liaison with nearby concurrent projects (e.g. TMB, TYLL, Road P1, Underground Quarrying at Lam Tei, etc.) will be conducted to minimize potential cumulative environmental impacts.

Table 2.3 Summary of the Key Construction Works for the Project

Description	Tentative Construction Programme
Reclamation at Tsing Lung Tau	Q1 2026 to Q1 2028
Site formation for anchorages of Tsing Lung Bridge	Q1 2026 to Q1 2028
Construction of explosive magazines	Q1 2026 to Q1 2028
Construction of tunnels, viaducts and interchanges	Q1 2028 to Q4 2033
Road realignment of Tuen Mun Road	Q1 2028 to Q4 2033
Construction of Tsing Lung Bridge	Q1 2028 to Q4 2033
Construction of ventilation buildings and administration buildings	Q1 2031 to Q4 2033

2.7 Concurrent Projects

- 2.7.1.1 Various cumulative impacts for different key concurrent projects have been identified. Detailed justification on consideration of various cumulative environmental impacts from individual concurrent project has been included and addressed in the corresponding assessment sections of this EIA report.

3 Summary of Environmental Impact Assessment

3.1 Air Quality

3.1.1 Construction Phase

3.1.1.1 Potential construction dust impact would be generated from site clearance, soil excavation, backfilling, reclamation, construction of tunnels, blasting, barging facilities, proposed concrete batching facilities 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 indicates 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 representative locations (i.e. the closest air sensitive receivers (ASRs) in all directions) to ensure that there is no adverse dust impact on the nearby ASRs.

3.1.2 Operational Phase

3.1.2.1 Cumulative air quality impact during operational phase arising from the operation of the Project, concurrent projects and other emission sources such as vehicular emission from open roads, emission from public transport interchanges and heavy goods vehicle / coach parkings, industrial emissions and marine emission within 500m study area has been assessed for the operation phase of the Project at the worst Year 2033 for Respirable Suspended Particulates (RSP) and Fine Suspended Particulates (FSP), and Year 2048 for Nitrogen Oxides (NO_x) with respect to vehicular emissions, which has the highest vehicular emission burden within 15 years after commencement of the Project for RSP/FSP and NO_x respectively. The results concluded that the predicted cumulative Nitrogen Dioxide (NO₂), RSP and FSP concentration at all Air Sensitive Receivers (ASRs) would comply with Air Quality Objectives (AQOs). 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. No adverse air quality impact is anticipated arising from the operation of the Project.

3.1.2.2 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.

3.2 Noise Impact

3.2.1 Construction Noise Impact

3.2.1.1 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 plant/methods (e.g. non-percussive construction methods, silent press-in piler, etc.), silencer, movable noise barrier, noise enclosure / barrier, etc., adverse construction noise impact during construction phase is not anticipated.

3.2.1.2 A Construction Noise Management Plan (CNMP) shall be submitted 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.

3.2.2 Road Traffic Noise Impact

3.2.2.1 Quantitative road traffic noise impact assessment has been conducted for planned, existing and committed noise sensitive uses. Without the implementation of mitigation measures, exceedance of noise criteria as stipulated in EIAO-TM is anticipated.

3.2.2.2 The predicted road traffic noise impact would comply with respective noise criteria at all noise sensitive receivers with the proposed traffic noise mitigation measures in place. 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.

3.2.3 Fixed Noise Sources Impact

3.2.3.1 Potential fixed noise source impact would be generated from the ventilation shaft of ventilation buildings and mechanical ventilation system of the administration buildings. 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.

3.2.3.2 A Fixed Noise Source Management Plan (FNMP) shall be submitted 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.

3.3 Water Quality

3.3.1 Construction Phase

3.3.1.1 The key water quality impact associated with the Project which could impact the nearby waterbodies and water sensitive receivers are mainly associated with the land-based construction phase of the Project, which includes general construction activities, construction site run-off, tunnelling and underground works, buildings construction, sewage due to construction workforce, construction works in close proximity of inland water, groundwater from contaminated areas and contaminated site run-off, diversion of watercourse and the accidental spillage of chemicals. 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.

3.3.1.2 A small reclamation at Tsing Lung Tau (i.e. a land area of about 2.2ha) is required for the Project. The marine-based construction works that would induce potential water quality impact include reclamation works, construction of mud pit and other marine works. A quantitative water quality assessment has been conducted. Results indicate that adverse water quality impact is not anticipated during the reclamation works. Nevertheless, deployment of single layer of silt curtain is proposed as enhancement measures. Good site practices are also proposed to minimize the potential water quality impact due to marine works. Hence, adverse impacts are not anticipated during the construction phase of the Project.

3.3.2 Operational Phase

3.3.2.1 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 and minimization of reclamation extent, adverse water quality impacts are not anticipated during the operational phase of the Project.

3.4 Waste Management Implications

3.4.1 Construction Phase

3.4.1.1 Potential waste management implications from the generation of waste during the construction phase have been evaluated. The main types of waste would be generated include C&D materials, land-based marine sediment, chemical waste, general refuse and floating refuse. It has been estimated that 9,298,300 m³ of inert C&D materials, 64,060 m³ of non-inert C&D materials, 31,000 m³ of marine sediment, a few hundred litres per month of chemical waste, 4,705 tons of general refuse, as well as 1.5 m³ per year of floating refuse would be generated.

3.4.1.2 In order to reduce the number of surplus materials to be disposed of, strategic mitigation measures such as the opportunity for on-site sorting, reusing C&D materials, etc. are devised. With the proper implementation of the recommended migration measures such as good site practices, waste reduction through good management and control, proper storage, collection and transportation of waste, all

dump trucks and vessel engaged on site for delivery of inert C&D materials from the site to Public Fill Reception Facilities (PFRFs) equipped with Global Positioning System (GPS) or equivalent system, preparation of a Construction and Demolition Management Plan (C&DMMP), etc., adverse environmental impacts from waste management during construction phase are not anticipated.

3.4.2 Operational Phase

3.4.2.1 Potential waste management implications from the generation of waste during the operational phase have been evaluated. The main types of waste that would be generated include general refuse from the employees within mainly the administration buildings and partly from the tunnel ventilation buildings, chemical waste from administration buildings, ventilation buildings as well as maintenance of the tunnel, and floating refuse trapped/accumulated by the proposed artificial seawall for the reclamation at Tsing Lung Tau.

3.4.2.2 With the implementation of recommended mitigation measures for the handling, transportation and disposal of the identified waste such as employment of a reputable waste collector to remove municipal solid waste regularly, reduction of generation of chemical wastes, following the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes, regular inspection and monitoring of floating refuse by Marine Department's appointed contractor, adverse environmental impacts from waste management during operational phase are not anticipated.

3.5 Land Contamination

3.5.1.1 Potential contaminative land uses within the assessment area and their potential impacts to future use have been examined. 15 potentially contaminated sites were identified. 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.

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

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

3.5.1.4 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.

3.6 Hazard to Life

3.6.1 Construction Phase

- 3.6.1.1 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 be classified as a PHI. Therefore, the hazard assessment for it is no longer required as there would not be any hazard-to-life concerns.
- 3.6.1.2 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.
- 3.6.1.3 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 overnight storage and transport of explosives as well as the use of explosives lie 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.
- 3.6.1.4 Subject to the liaison of the three concurrent projects 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 quantitative risk assessment 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.

3.6.2 Operational Phase

- 3.6.2.1 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.

3.7 Ecology (Terrestrial and Marine)

3.7.1 Findings from Surveys and Literature

- 3.7.1.1 Ecological assessment has been conducted in accordance with Section 3.4.10 and Appendix H of the EIA Study Brief No. ESB 352/2022. The ecological baseline has been established based on literature review and results of the core field surveys

of nine months between May 2022 and January 2023 with supplementary surveys completed in May 2023, covering both wet and dry seasons.

- 3.7.1.2 Recognized sites of conservation importance falling within or in the vicinity of the assessment area include Tai Lam Country Park (TLCP), Siu Lang Shui Site of Special Scientific Interest (SSSI), and “Conservation Area” under OZP. Important habitats within or in the vicinity of the assessment area include Fung Shui Woodlands in So Kwun Wat, catchwater tunnels with roosting bats in Tai Lam Chung, Siu Lang Shui Butterfly Habitat, Ma Wan Egret, Day Roost and Night Roost, and marine habitat for Chinese White Dolphin. Twelve types of habitats were identified within the assessment area, namely agricultural land, backshore, channel, developed area, fung shui woodland, intertidal habitat (including seawall and natural coastline), mixed woodland, plantation, reservoir, sea, shrubland/grassland and watercourse. Dominant habitat types within the assessment area are shrubland/grassland, followed by developed area, sea and mixed woodland. The number and abundance of species of conservation importance recorded within the aboveground works areas or marine works areas were limited.

3.7.2 Avoidance and Minimization

- 3.7.2.1 Key ecological issues of the Project include potential impacts to TLCP, catchwater tunnels with roosting bats in Tai Lam Chung, Fung Shui Woodlands (FSWs) in So Kwun Wat and mixed woodland. Nevertheless, due consideration on impact avoidance and impact minimization have been taken in the Project.
- 3.7.2.2 The Project has minimized the overall habitat loss and completely avoided direct impact on TLCP and all other recognized sites of conservation importance by adopting tunnel form for significant proportion of the alignment (i.e. Lam Tei Tunnel, So Kwun Wat Link Road and Tai Lam Chung Tunnel), including all sections through TLCP, and careful site selection for aboveground works areas. The Project has thus avoided direct habitat loss from any recognized sites of conservation importance including TLCP. Besides all sections of alignment within TLCP, there are also some further tunnel sections outside TLCP, and the overall loss of natural habitats are further minimized.
- 3.7.2.3 Direct loss of important terrestrial habitats will also be avoided. By refining the alignment, in addition to reducing the extent of cut slope in So Kwun Wat and thus the associated habitat loss, overlapping of the alignment with FSW habitat has also been minimized to 0.25ha. The design of the concerned overlapping section has also been further considered to adopt viaduct form instead of at-grade road form, to span over the FSW. The piers for this section of viaduct would avoid the FSW, with increased gradient of viaduct to allow more headroom and a 7-metre gap between the north-southbound lanes, direct encroachment onto the FSW will therefore be avoided and shading impact is also minimized. Besides, Siu Lang Shui Butterfly Habitat, as well as Ma Wan Egret, Day Roost and Night Roost will also be avoided.
- 3.7.2.4 For temporary habitat loss during construction, the temporary works areas, barging points and magazine sites are dominated by existing developed areas. The haul roads would follow the main alignment of the Project as far as possible, so as to maximize the overlapping with aboveground works areas and minimize the additional temporary habitat loss.

- 3.7.2.5 The alignment has also avoided overlapping with most of the catchwater tunnels with roosting bats in Tai Lam Chung. The only exception is TLC Catchwater Tunnel No. 6 in which the proposed Tai Lam Chung Tunnel (South Section) would pass underneath due to site constraints and technical requirements. While there will be no direct impact, indirect impact would still be reduced by optimizing the vertical separation distance between TLC Catchwater Tunnel No. 6 and the proposed Tai Lam Chung Tunnel (South Section). The horizontal separation between Lam Tei Tunnel and So Kwun Wat Link Road with TLC Catchwater Tunnel No. 8 has also been maximized as far as practicable to minimize ground-borne vibration impact to roosting bats.
- 3.7.2.6 Fragmentation of habitats has also been minimized by adopting tunnel and viaduct design at the aboveground sections. In addition, the aboveground works areas for the main alignment in Lam Tei, So Kwun Wat, Tai Lam, Siu Lam, Tsing Lung Tau and Ng Kwu Leng are located at the edge of natural habitats, such that the resulting habitat fragmentation is minimized to the best practicable extent.
- 3.7.2.7 Furthermore, reclamation in North Lantau has been avoided and the reclamation area in Tsing Lung Tau has also reduced to 2.2ha.

3.7.3 Construction phase

Terrestrial Ecology

- 3.7.3.1 Potential direct ecological impacts arising from the Project during the construction phase include permanent and temporary habitat loss, as well as impact on flora (including Incense Tree, Small Persimmon, Luofushan Joint-fir, Ixonanthes and Pitcher Plant) and fauna species of conservation importance of relatively low mobility (including Hong Kong Cascade Frog) identified within the aboveground works areas. A conservative approach has been adopted for the estimation of direct habitat loss, assuming that all areas covered by viaduct on plan as part of the permanent habitat loss and areas within 5m distance on plan from the aboveground Project footprint as additional works areas forming part of the temporary habitat loss, but both will be subject to actual needs during construction and are expected to be smaller than the estimated areas. The majority of watercourses falling within the aboveground works areas would also be preserved onsite even construction activities are conducted nearby, except at four locations where direct impact is expected and provision of green channel diversion is needed where practicable. With the implementation of mitigation measures, no adverse impact is anticipated.
- 3.7.3.2 Most terrestrial habitats to be lost (e.g. backshore, channel, developed area, plantation, and shrubland/grassland) are of low ecological value. No specific ecological mitigation measure will be required for the permanent or temporary loss of habitats of low ecological value.
- 3.7.3.3 For the rest of habitats mentioned above, the potential impact of loss of mixed woodland of low to medium value is considered as moderate. Permanent loss of about 17.54ha of mixed woodland would be mitigated by off-site compensatory woodland planting at Tuen Mun West, since on-site compensation is not feasible due to limited Project area available for tree planting. For the temporary loss of about 6.54ha of mixed woodland, on-site reinstatement planting will be provided after construction as far as practicable. Should reinstatement at temporary works areas be found not feasible, the loss may also be compensated together as part of the off-site compensation woodland.

- 3.7.3.4 By optimizing the design of viaduct as mentioned in **Table 2.1**, FSW habitat beneath the viaduct has been preserved, but felling of 8 trees of *Ixonanthes reticulata* located in the eastern patch of Ching Uk Tsuen (CUT) FSW will be unavoidable. Owing to their size and their locations on slopes, which may not be accessible by mechanical equipment, transplantation is considered not feasible. Compensation of these 8 nos. of *I. reticulata* will be provided within or in the vicinity of CUTFSW as far as practicable.
- 3.7.3.5 Direct impact on watercourses in So Kwun Wat and Siu Lam, all of which fall outside TLCP, is expected during the construction phase, including a ditch and four watercourse sections, which are of low and low to medium ecological value respectively. Direct impact will be mitigated by diversion of the sections of watercourses to be directly impacted and provision of green channel design, together with translocation of aquatic and/or water-dependent species of conservation importance, should any be recorded during the detailed survey on aquatic and/or water-dependent species of conservation importance to be carried out.
- 3.7.3.6 Bird, butterfly, odonate and reptile species of conservation importance of relatively higher mobility and recorded within the aboveground works areas of the Project are unlikely to be directly impacted. Besides, during the construction phase, mammal and herpetofauna species, including those of conservation importance, will be prevented from entering the aboveground works areas with site formation by the erection of construction hoardings around their boundaries.
- 3.7.3.7 To mitigate the remaining potential direct ecological impacts on flora and fauna species of conservation importance within the aboveground works areas falling outside TLCP, detailed vegetation survey followed by preservation, transplantation and/or compensatory planting of flora species of conservation importance, and detailed survey and translocation of aquatic and/or water-dependent fauna species of conservation importance at watercourse sections to be affected will be carried out.
- 3.7.3.8 The anticipated direct ecological impact will be mitigated to minor level. Monitoring of the establishment of the compensatory woodland, implementation of transplantation and monitoring of the flora species of conservation importance and translocation and monitoring of aquatic and water-dependent fauna species will be conducted where applicable.
- 3.7.3.9 Potential indirect impacts during the construction phase have been assessed, including habitat fragmentation, construction disturbance (the impact of ground-borne vibration on the roosting bats inside catchwater tunnels is to be addressed separately in **Section 3.7.3.10**), light glare impact, water quality impact and potential groundwater drawdown along the tunnel alignments, 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. Nevertheless, good site practices will be implemented to further minimize the impacts and monitoring on effectiveness of mitigation measures for potential groundwater drawdown will be carried out.

- 3.7.3.10 For the other potential indirect ground-borne vibration impact on TLC Catchwater Tunnel Nos. 1, 5, 6, 7 and 8 with roosting bats, the Project has considered to maximize the separation distance between the concerned catchwater tunnels and tunnels to be constructed by the Project to the best practicable extent. The impact of ground-borne vibration arising from tunnelling works of Lam Tei Tunnel, So Kwun Wat Link Road and Tai Lam Chung Tunnel (South Section) on the catchwater tunnels with roosting bats within the assessment area is anticipated to be minor (TLC Catchwater Tunnel No. 5), minor to moderate (TLC Catchwater Tunnel Nos. 6 and 8) or insignificant (TLC Catchwater Tunnel Nos. 1 and 7) in the absence of mitigation. To mitigate the impact of ground-borne vibration on these roosting bats, controlled blasting with the charge weight adjusted with the works fronts of tunnelling will be implemented. Through reviewing relevant and publicly available literature, ground-borne vibration levels are recommended for planning of blasting works for tunnelling, including “Alert Level”, “Action Level” and “Limit Level”. Regular adaptive review on the “Alert Level”, “Action Level” and “Limit Level” 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, and the latest studies available will be conducted throughout the course of tunnelling works. 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. A monitoring programme on TLC Catchwater Tunnel Nos. 1, 5, 6, 7 and 8 covering pre-blasting baseline condition, the full course of blasting works, post-blasting, and operational phase, will be conducted. Ground-borne vibration monitoring and bat monitoring surveys comprising acoustics survey, emergence survey, and bat roost survey covering overwintering season, breeding season and time gap between overwintering and breeding season, will be conducted for TLC Catchwater Tunnel Nos. 1, 5, 6, 7 and 8 for at least 9 months prior to any blasting to establish the pre-construction baseline, and during the whole blasting programme within construction phase, and also for at least 9 months after all blasting works are completed. Moreover, within the first year of the operational phase, both ground-borne vibration and bat roost monitoring will be conducted for TLC Catchwater Tunnel Nos. 1, 5, 6, 7 and 8 for at least 9 months. With the adoption of bat-relevant mitigation measures, it is anticipated that the ground-borne vibration impact on roosting bats will be mitigated to an acceptable level.

Marine Ecology

- 3.7.3.11 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 4.1 ha) and temporary (about 13 ha) 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.
- 3.7.3.12 No specific marine ecological mitigation 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 4.1 ha sea habitat and temporary loss of about 13 ha sea habitat caused by the current Project is considered minor.

- 3.7.3.13 As a precautionary measure, prior to the start of marine construction works, a detailed reconnaissance dive survey along the man-made seawall and semi-natural coastline within the reclamation site was recommended to inspect if there are any additional colonies of hard and/or soft coral species. Should significant colonises are identified, the effectiveness and feasibility of coral translocation will be assessed. A detailed translocation proposal will be prepared if coral translocation is confirmed necessary.
- 3.7.3.14 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.
- 3.7.3.15 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 indirect marine ecological impacts are either minor or insignificant and do not require specific ecological mitigation measure.

3.7.4 Operational phase

- 3.7.4.1 With good site practice guidelines, ecological impacts due to noise disturbance, ground-borne vibration disturbance from traffic, light glare, habitat fragmentation, impact on flight-lines and foraging habitats of ardeids (insignificant routing towards the direction of Tsing Lung Bridge), potential roadkill and bird collision, water quality impact, shading effect on part of the eastern patch of Ching Uk Tsuen Fung Shui Woodland and impact on recognized sites of conservation importance, important habitats, roosting ground and species of conservation importance during the operational phase are all considered minor or insignificant in nature and magnitude. No specific ecological mitigation measure but good practices for these ecological impacts during the operational phase is considered necessary.

3.8 Fisheries

3.8.1 Findings from Surveys and Literature

- 3.8.1.1 The assessment area for the Fisheries Impact Assessment followed the assessment area for water quality impact assessment and included any other areas likely to be impacted by the Project. Special attention has been given to potential loss or disturbance of fishing grounds, fisheries resources, habitats and other fisheries sensitive receivers.
- 3.8.1.2 Information from literatures and the field surveys has been incorporated, which provided sufficient information on fisheries resources and operation in the assessment area. The overall fisheries production and fishing operation in the vicinity of the proposed development is regarded as low to moderate and moderate, respectively. Sensitive receivers, including Ma Wan Fish Culture Zone, spawning ground of commercial fisheries resources in northern Lantau waters and artificial reefs in the Brothers Marine Park have been identified. These fisheries sensitive receivers are located away from the proposed alignment. The potential impacts arising from the construction and operation activities of this Project to these sensitive receivers have been evaluated.

3.8.2 Construction phase

- 3.8.2.1 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 4.1 ha fisheries habitats and fishing ground due to 2.2ha of reclamation area and 1.9ha of seawall construction, and temporary loss of about 13ha fishing ground due to marine works areas. Considering the small extent of the area to be affected during the construction phase which is of low to moderate fisheries production and moderate level of fishing operation, impacts are considered to be of minor significance and unacceptable impacts on fisheries resources, habitats and fishing activities are not expected.
- 3.8.2.2 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. Deployment of silt curtain and good site practices will be implemented to further avoid/reduce potential impacts on water quality. These measures are expected to control and reduce potential impacts to fisheries as well, and no other fisheries-specific mitigation measures are thus required during construction of the Project.

3.8.3 Operational phase

- 3.8.3.1 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 4.1ha of fisheries habitats and fishing ground due to 2.2ha of reclamation area and 1.9ha of seawall construction. Other indirect impact to fisheries, such as the change of hydrodynamic and marine water quality are evaluated and considered negligible in nature. No fisheries-specific mitigation measures are required during operation of the Project.

3.9 Landscape and Visual

3.9.1 Landscape and Visual Baseline

- 3.9.1.1 The Landscape Resources (LRs) and Landscape Character Areas (LCAs) of the Project were identified and assessed. Within the assessment area, there are a total of 23 LR and 15 LCAs.
- 3.9.1.2 A total of 57 Visually Sensitive Receivers (VSRs) within the Visual Envelope (VE) of the Project were identified and assessed.
- 3.9.1.3 It is estimated there are total approximate 25,720 nos. of existing trees within the 100m landscape impact assessment area.
- 3.9.1.4 There is no Registered Old Valuable Trees (OVT) within the 100m landscape impact assessment area.
- 3.9.1.5 There are approximate 63 nos. *Ixonanthes reticulata* (TPI) (size range: 5 to 22m height, 100 to 570mm DBH and, 2 to 12m crown) are identified within and near the works area within LR-SK1 (Secondary Woodlands in So Kwun Wat) and LR-SK11 (Developed Areas in So Kwun Wat), as well as 2 nos. of mature *Ficus spp.* with DBH of over 1m at other locations are recorded within the 100m landscape assessment area.

- 3.9.1.6 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.
- 3.9.1.7 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.

3.9.2 Landscape and Visual Impact Summary

- 3.9.2.1 An estimated approximate 5,077 nos. of affected trees in tree groups, together with 8 nos. of Tree of Particular Interest (TPI), namely *Ixonanthes reticulata* in Fung Shui Woodland near So Kwun Wat would be affected due to excessive tree topping, and proposed to be felled due to low “Suitability for Transplanting” based on preliminary assessment at this stage.
- 3.9.2.2 During the operational phase in Year 10, there will be **Moderate** adverse residual impacts in Year 10 for LR-SK1 Secondary Woodlands in So Kwun Wat, LR-NL4 Shrublands in North Lantau and LCA-NL9 Ng Kwu Leng Peninsular Landscape.
- 3.9.2.3 During the operational phase, there will be **Slight** adverse residual impacts in Year 10 for 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, and LCA-SK7 Tai Lam Chung River Valley Landscape.
- 3.9.2.4 The remaining LRs would be subject to an **Insubstantial** residual impact during Year 10 of the operational phase.
- 3.9.2.5 An estimated approx. 100 nos. of affected trees, mostly roadside amenity tree plantings, are considered suitable for transplanting.
- 3.9.2.6 The exact quantity, tree condition, proposed recommendations as well as future receptor locations of these trees shall be further reviewed in the formal Tree Preservation and Removal Proposal (TPRP) to be prepared and submitted in the detailed design stage. To achieve a compensatory ratio of not less than 1:1 in terms of number of trees to be felled, at least 5,085 nos. (5,077 nos. common trees + 8 nos. TPI) of compensatory trees are required. Under the proposed scheme for the Project, opportunities for tree compensation within the Project boundary has been fully explored and incorporated in the proposed mitigation measures as much as practicable. It is estimated that approximate 1,300 nos. compensatory tree planting in heavy standard size is proposed at roadside flat areas mainly near the tunnel portal areas, administration areas in Lam Tei Quarry and North Lantau and road verge areas. Further, it is estimated that approximate 700 nos. light standard trees will be proposed along at-grade wall planters, subject to the gradient of the proposed new slopes. All proposed species shall be commonly used in roadside environment and be native for areas adjoining woodland area where appropriate, so as to enhance the surrounding landscape and ecological value. The native seedlings/whip trees for off-site woodland compensation at Tuen Mun West will be tentatively planted at an initial spacing of 1,500 mm in staggered pattern on planting area with gradient less than 35 degree, followed by thinning during the establishment period to decrease the potential competition between trees. It is

anticipated that total area of ~24.4ha will be proposed for not less than approximate 3,085 nos. compensatory whip tree planting.

- 3.9.2.7 Compensatory planting proposals in the form of trees as well as other planting opportunities (e.g. slope greening, vertical greening, etc.) shall be prepared as part of the formal TPRP in the detailed design stage for relevant government departments' agreement.
- 3.9.2.8 The residual visual impacts in Year 10 of the operational phase include **Moderate** adverse impacts for VSR-LT2 Residents of Fu Tai Estate, VSR-LT3 Residents of Lo Fu Hang, 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-LT5 Residents of Fuk Hang Tsuen, 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, and VSR-NL8 Residents of Park Island.
- 3.9.2.9 The residual visual impacts in Year 10 of the operational phase include **Slight** adverse impacts for 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-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-SK23 Vehicle Travellers and Pedestrians on Castle Peak Road – Tai Lam, VSR-SK25 Trail Walkers at South of To Hang Tung, 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 and VSR-NL9 Future Users at Planned Sunny Bay Reclamation Area.

- 3.9.2.10 The remaining VSR will be subject to an **Insubstantial** residual impact in Year 10 of the operational phase, namely, VSR-LT10 Trail Walkers on Fu Tei Country Trail and Lam Tei Irrigation Reservoir, VSR-SK28 Students and Staff at Chu Hai College of Higher Education and VSR-NL10 Future Vehicle Travellers on Planned Road P1.
- 3.9.2.11 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.

3.10 Cultural Heritage

3.10.1 Terrestrial Archaeology

- 3.10.1.1 An archaeological impact assessment has been conducted for the Project. No site of archaeological interest would be affected by the Project and associated works. An area of archaeological potential was identified at the east of Area A at the lower slopes to the north of Lam Tei Quarry within the works area. Due to restrictions in access, no archaeological field survey could be undertaken at this stage and it is recommended that the survey to be undertaken when access is available but before the site formation and construction phases.
- 3.10.1.2 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 with AMO before implementation by the project proponent to the satisfaction of AMO.

Construction Phase

- 3.10.1.3 An archaeological field survey will be conducted at east of Area A at the lower slopes to the north of Lam Tei Quarry within the works area when access is available before the site formation and construction phase. Subject to the result(s) of the survey, mitigation measures, if necessary, will be proposed for AMO's agreement before implementing to the satisfaction of AMO.

Operational Phase

- 3.10.1.4 Terrestrial archaeological impact is not anticipated during operational phase.

3.10.2 Built Heritage

- 3.10.2.1 The literature review conducted for the built heritage impact assessment has also collated relevant information on Declared Monuments and Graded Historic Buildings. A field survey was also conducted for built heritage to identify all built heritage resources within 300m from the boundary of the Project area. Results indicate there is a Grade 3 Former Perowne Barracks, Gurkha Temple located at around 11m from the earthworks associated with road works.
- 3.10.2.2 Other resources including shrines, former stone quarry site, Fung Shui Woodland and other concerned buildings were also identified. 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 with AMO before implementation by the project proponent to the satisfaction of AMO.

Construction Phase

- 3.10.2.3 The earthworks associated with road works have the potential to directly/indirectly impact on Former Perowne Barracks, Gurka Temple nearby. Mitigation measures before, during and after the construction phase will be required including 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 physical separate the heritage site from the works. Special attention should be paid to avoid adverse physical impact arising from the construction of the Project. Design proposal, method of works and choice of machinery will be selected to minimize adverse impacts to the heritage site. Foundation information of the historic structure shall be verified on site if needed, sufficient lateral support should be provided, and de-watering (if required) should be carried out with great cautions to control ground movement and change of ground water regime at the heritage site. Therefore, adverse impact on built heritage is not anticipated during operational phase.

Operational Phase

- 3.10.2.4 Impact on built heritage is not anticipated during operational phase.

3.10.3 Marine Archaeology

- 3.10.3.1 A Marine Archaeological Investigation (MAI) has been conducted for the proposed reclamation of the Project. The baseline conditions have been established by first reviewing historical information. A 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.

- 3.10.3.2 It should however be noted that the Study Area for marine archaeology is located along the Ha Pang Fairway which is heavily utilized by marine vessels such as ocean-going vessels. As advised by Marine Department, it is highly not recommended to conduct the diving works within the inshore traffic zone and the fairway from the marine navigational safety point of view. Fencing off the diving area is required to secure diver’s safety, which would unavoidably affect the operation of the fairway. As such, a marine traffic impact assessment would be required to be conducted to minimize the potential marine traffic impact, especially on the ocean-going vessels in relatively close proximity or even with potential interface. In addition, a contractor would be required to be engaged to fence off the fairway. All of the above would have significant time implication and thus considered not feasible to be carried out in the EIA stage, and better to be implemented during the detailed design stage.

Construction Phase

- 3.10.3.3 It should be emphasized that according to the geophysical survey data, there is no shipwreck within the 300m assessment area. The anomalies identified from the geophysical survey are also relatively small in size.
- 3.10.3.4 In case any of the anomalies with marine archaeological value is confirmed during the marine diver survey of MAI during detailed design stage, the project proponent

should inform AMO immediately for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO. Moreover, with reference to the previous MAI, no marine archaeological resource was identified within the proposed reclamation area of the Project. Thus, it is considered unlikely to affect the design of the Project.

- 3.10.3.5 After considering all relevant literatures, all the previous MAI, latest geophysical survey, consideration of marine safety and time implication, it is recommended to conduct the marine diver survey during detailed design stage when fencing off of the diving area can be safely implemented. Nevertheless, all the diver survey shall be conducted prior to reclamation works.
- 3.10.3.6 For marine ground investigation (GI), which would be required prior to the reclamation works or the diver survey, it is recommended that the marine GI works shall be arranged to avoid all the anomalies identified by the geophysical survey conducted, by allowing sufficient setback distance (around 50m) from the anomalies. In case of discovery of any antiquities or supposed antiquities in the course of marine GI works, the project proponent is required to inform AMO immediately for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO. Besides, any GI at the anomalies is required to be conducted after confirming their nature by MAI and seeking agreement with AMO.

Operational Phase

- 3.10.3.7 Marine archaeological impact is not anticipated during operational phase.

4 Environmental Monitoring and Audit

- 4.1.1.1 An Environmental Monitoring and Audit (EM&A) programme has been formulated for Project which is a DP listed under Schedule 2 of the EIAO, with details presented in the separate EM&A Manual. Key aspects which require monitoring include air quality (i.e. construction dust), noise (i.e. construction noise and road traffic noise), water quality and ecology (i.e. impacts on bat roosts).
- 4.1.1.2 The EM&A programme will provide management actions to check the effectiveness of the recommended mitigation measures and compliance with relevant statutory criteria, thereby ensuring the environmental acceptability of the construction and operation of the Project.

5 Conclusion

- 5.1.1.1 The Project will be a strategic highway, consists of at-grade roads, viaducts, tunnels and suspension bridge, to support the proposed developments in the NWNT, and provide the third vehicular access to Lantau in addition to the existing Tsing Ma and Kap Shui Min Bridges and the TM-CLKL. It will cover areas in Lam Tei, So Kwun Wat, Tai Lam, Tsing Lung Tau and North Lantau.
- 5.1.1.2 An EIA Report has been prepared to fulfil the requirements as specified in the EIA Study Brief (No.: ESB-352/2022) and the EIAO-TM. All the latest design information has been incorporated into the EIA process. The aspects that have been considered in this EIA Report include:
- Project Description and Consideration of Alternatives;
 - 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;
 - Impact on Cultural Heritage; and
 - EM&A Requirements.
- 5.1.1.3 The summary of the environmental impacts arising from the Project is presented in **Table 5.1**.
- 5.1.1.4 Overall, the EIA Report has predicted that the Project would be environmentally acceptable and individual impacts are minimized with the implementation of the proposed mitigation measures for construction and operational phases. An EM&A programme has been recommended to check the effectiveness of recommended mitigation measures.

Table 5.1 Summary of environmental impacts

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria Relevant	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Air Quality Impact					
Construction Phase					
Existing and planned ASRs	<ul style="list-style-type: none"> Adverse construction dust impact is not anticipated with proper implementation of good control measures and environmental monitoring and audit 	<ul style="list-style-type: none"> AQO EIAO-TM Annex 4 <ul style="list-style-type: none"> 24-hour average RSP concentration: 100 µg/m³ (Number of exceedance allowed: 9) Annual average RSP concentration: 50 µg/m³ 24-hour average FSP concentration: 50 µg/m³ (Number of exceedance allowed: 18) Annual average FSP concentration: 25 µg/m³ 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Close liaison between the contractors of other concurrent projects and the Project would be maintained to minimise dusty activities to be conducted concurrently as far as practicable <p>Good control measures are recommended:</p> <ul style="list-style-type: none"> Watering once per hour on the exposed construction areas with dust emission and paved haul roads to reduce dust emission; Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good sites practices would be carried out to further minimise construction dust impact; Follow the requirements stipulated in the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2 (16) to minimise the fugitive emissions arising from the operation of concrete batching plant; 	<ul style="list-style-type: none"> No adverse residual impacts anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria	Relevant Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<ul style="list-style-type: none"> Emission control measures for barging facilities, such as provision of enclosed system with 3-side screen with top cover and provision of water spraying system, regular water and covering spoils by tarpaulin; and The engine of the barge shall be switched-off during berthing as far as practicable. Provision of on-shore power supply shall also be considered wherever possible to minimize air quality impact from the marine vessels, with consideration of actual site constraints or circumstances to be further reviewed during detailed design stage. 	
Operational Phase					
Existing and planned ASRs	<p>NO₂</p> <ul style="list-style-type: none"> 19th highest 1-hr average concentration: 88 – 166 µg/m³ Annual average concentration: 17 – 39µg/m³ <p>RSP</p> <ul style="list-style-type: none"> 10th highest 24-hour average RSP concentration: 64 – 73µg/m³ Annual average RSP concentration: 26 – 29µg/m³ <p>FSP</p> <ul style="list-style-type: none"> 19th highest 24-hour average FSP concentration: 35 – 41µg/m³ Annual average FSP concentration: 15 – 16µg/m³ 	<ul style="list-style-type: none"> AQO EIAO-TM Annex 4 <ul style="list-style-type: none"> 1-hour average NO₂ concentration: 200 µg/m³ (Number of exceedance allowed: 18) Annual average NO₂ concentration: 40 µg/m³ 24-hour average RSP concentration: 100 µg/m³ (Number of exceedance allowed: 9) Annual average RSP concentration: 50 µg/m³ 	<ul style="list-style-type: none"> No exceedance is anticipated 	<ul style="list-style-type: none"> No mitigation measure is required; During the subsequent design stage and the operational stage, the ventilation engineer should conduct adaptive 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 adaptive reviews would allow the 	<ul style="list-style-type: none"> No adverse residual impacts anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		<ul style="list-style-type: none"> ○ 24-hour average FSP concentration: 50 µg/m³ (Number of exceedance allowed: 18) ○ Annual average FSP concentration: 25 µg/m³ 		<p>designer and operator to optimize the operation of the ventilation system without compromising the compliance of AQOs; and</p> <ul style="list-style-type: none"> • 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. 	
Noise					
Construction Phase					
Existing and planned NSRs	<ul style="list-style-type: none"> • Adverse construction noise impact is not anticipated with proper implementation of good control measures and environmental monitoring and audit • The future Contractor will also be required to prepare a Construction Noise Management Plan (CNMP) 	<ul style="list-style-type: none"> • EIAO-TM Annex 5 and Annex 13 for non-restricted hours for domestic premises: <ul style="list-style-type: none"> ○ L_{eq (30mins)} 75 dB(A) for all domestic premises, temporary housing accommodation, hostel, convalescent homes and homes for the aged 	<ul style="list-style-type: none"> • Not applicable 	<p>Good control measures are recommended to minimize the construction noise impact as far as practical:</p> <ul style="list-style-type: none"> • Good site practices to limit noise emissions at the source; • Use of quality powered mechanical equipments (QPMEs) and quieter construction methods; • Use of temporary noise barriers and enclosures to screen noise from relatively static PME; and • Alternative use of plant items within one worksite, wherever practicable. 	<ul style="list-style-type: none"> • No adverse residual impacts anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		<ul style="list-style-type: none"> ○ $L_{eq(30mins)}$ 70 dB(A) for places of public worship, courts of law, hospitals, medical clinics and educational institution (including kindergartens and nurseries) (65 dB(A) during examination period 			
Operational Phase (Road Traffic Noise)					
Existing and planned NSRs	<ul style="list-style-type: none"> • Predicted overall noise levels: 40 – 82dB(A) • Predicted road traffic noise levels of the project roads: ≤ 40 – 79dB(A) • Maximum contribution from Project roads (When the overall level exceeds respective criterion): 6.6dB(A) 	EIAO-TM Annex 5 and Annex 13: <ul style="list-style-type: none"> ○ $L_{10(1hour)}$ 70dB(A) for all domestic premises, temporary housing accommodation, hostel, convalescent homes and homes for the aged ○ $L_{10(1hour)}$ 65dB(A) for places of public worship, courts of law and educational institution ○ $L_{10(1hour)}$ 55dB(A) for medical and clinics 	<ul style="list-style-type: none"> • Exceed EIAO-TM criterion by up to 12 dB(A) 	<ul style="list-style-type: none"> • Provision of highly modified friction course (HMFC) as standard surfacing material on the high speed road sections of new road projects with design speed of 80km/hr or above and expressway; • Provision of 6mm polymer modified stone mastic asphalt (PMSMA6) as low noise surfacing material for other roads without standard surfacing material on suitable Project Road sections; • Provision of noise mitigation measures: <ul style="list-style-type: none"> ○ <u>Lam Tei</u>: Vertical Barrier (VB) and Cantilever Barrier (CB) along slip roads connecting KSWH / YLH; ○ <u>So Kwun Wat</u>: CB near So Kwun Wat Link Road western portal; and ○ <u>Tsing Lung Tau</u>: VB, CB and semi-enclosure along realigned TMR. 	<ul style="list-style-type: none"> • No adverse residual impacts anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria	Relevant Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<ul style="list-style-type: none"> For planned developments, necessary receiving-end mitigation measures will be proposed by the respective project proponent in addition to the proposed at-source mitigation measures. 	
Operational Phase (Fixed Noise)					
Existing and planned NSRs	<ul style="list-style-type: none"> Adverse fixed noise impact is not anticipated with good design and control measures, and environmental monitoring and audit The future Contractor will also be required to prepare a Fixed Noise Management Plan (FNMP) 	<ul style="list-style-type: none"> EIAO-TM Annex 5 and Annex 13, and IND-TM Appropriate ANLs and ANLs-5 as shown in Table 2 of IND-TM or the prevailing background noise level 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Proper selection of quieter equipment and installation of silencer, barrier or enclosure; Orientating louvres away from adjacent NSRs, preferably onto main roads which are less noise sensitive; and Selection of façade for ventilation shafts with adequate sound insulation properties. 	<ul style="list-style-type: none"> No adverse residual impacts anticipated
Water Quality					
Construction Phase					
Water Sensitive Receivers	<p>Water quality in WSRs would be deteriorated by land-based construction with the following pollution sources:</p> <ul style="list-style-type: none"> Construction run-off and general construction activities; Tunnelling and underground works; Construction for ventilation buildings and administration buildings; Sewage due to construction workforce; Construction works in close proximity of inland water; Removal or diversion of Watercourses 	<ul style="list-style-type: none"> EIAO-TM Annex 6 and Annex 14 WPCO (Cap. 358) TM-DSS ProPECC PN 1/94 WSD's Water Quality Criteria for Sea Water Intakes 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Good site practices in accordance with ProPECC PN1/94 when handling the site sun-off from general site operation; Suitable water control strategies (e.g. probing ahead and pre-grouting) during tunnel works; Temporary dewatering to minimize impacts on groundwater table during the works; Providing temporary sanitary facilities and posting notices about treating discharge at conspicuous locations for the workforce; 	<ul style="list-style-type: none"> No adverse residual impacts anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria Relevant	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<ul style="list-style-type: none"> Groundwater from contaminated areas and contaminated site run-off; Operation of barging point; and Accidental spillage of chemicals. <p>Water quality in WSRs would be affected by marine-based construction with the following pollution sources:</p> <ul style="list-style-type: none"> Reclamation at Tsing Lung Tau; Seawall construction; Stone column installation; and Marine traffic. <p>Quantitative water quality assessment results showed no adverse impact to water quality during reclamation works.</p>			<ul style="list-style-type: none"> Comply with the Conditions for Working within Water Gathering Grounds; Good site practices in accordance with ETWB TC(Works) No. 5/2005 “Protection of natural streams/rivers from adverse impacts arising from construction works” for removal or diversion of watercourses; Proper handling of contaminated groundwater and site run-off; Proper good site practice to prevent water quality impact during transportation of spoil when using the barging point; Proper storage of the chemicals used during construction; Filling works to be conducted within the completed leading seawall; Mud pit to be completely sealed to prevent any leakage of backfilled sediments to the surrounding marine waters; and Deployment of single layer silt curtain as enhancement measures. 	
Operational Phase					
Water Sensitive Receivers	<p>Water quality in WSRs would be affected by the following operational activities:</p> <ul style="list-style-type: none"> Surface run-off from paved areas of the Project; Sewage effluent from the proposed buildings; 	<ul style="list-style-type: none"> EIAO-TM Annex 6 and Annex 14 WPCO (Cap. 358) TM-DSS ProPECC PN 5/93 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Provision of mitigation measures including 1) standard oil interceptors before discharge to public stormwater drainage system and 2) silt trap for the surface runoff at the stormwater drainage system as necessary; 	<ul style="list-style-type: none"> No adverse residual impacts anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria	Relevant Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<ul style="list-style-type: none"> • Drainage of road surface and tunnel runoff; and • Wastewater generated from washing and maintenance operation. <p>Quantitative water quality assessment results showed no adverse impact to water quality during operational phase.</p>			<ul style="list-style-type: none"> • Connection to existing sewerage networks for sewage effluent from proposed buildings; • Collecting and treating wastewater generated by washing and maintenance activities of ventilation systems via an active carbon filter before being discharged to stormwater drainage system; and • Proper collection and disposal of spent lubrication oil by Licensed Chemical Contractor. 	
Waste Management Implication					
Construction Phase					
<p>The waste transportation routes and the waste disposal site, as well as the waste disposal outlet</p>	<ul style="list-style-type: none"> • It is estimated that 1,596,600m³ of soft inert C&D material would be generated and reused on-site as far as practicable or delivered to Tuen Mun Area 38 Fill Bank for reuse in other projects; • It is estimated that 7,701,700m³ of hard inert C&D material would be reused on-site as much as practicable and the surplus would be delivered to Tuen Mun Area 38 Fill Bank for reuse in other projects; • It is estimated that 64,060m³ of non-inert C&D materials would be generated and be disposed of at WENT Landfill; 	<ul style="list-style-type: none"> • EIAO-TM Annex 7 and Annex 15 • WDO (Cap. 354) • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • Public Health and Municipal Services Ordinance (Cap. 132) – Public Cleansing and Prevention of Nuisances Regulations • DASO (Cap. 466) • DEVB TCW No. 06/2010 • ETWB TC(W) No. 34/2002 • WBTC No. 12/2000 Fill Management 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Waste reduction should be considered at the planning and design phase, as well as by ensuring the implementation of good site practices; • Carry out on-site sorting to retrieve recyclable materials as much as possible; • Inert construction waste shall not be in liquid form such that it can be contained and delivered by water-tight containers. Inert C&D materials in liquid form shall be solidified before delivering to the public fill reception facilities; 	<ul style="list-style-type: none"> • No adverse residual impact anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<ul style="list-style-type: none"> It is estimated that 31,000m³ of marine sediment would be generated. Reuse of sediment on site would be explored and marine disposal would only be considered as last resort; It is estimated that 4,705tonnes of general refuse would be generated and be recycled for recyclables or disposed of at WENT Landfill; A few hundred litres of chemical wastes would be generated per month. It would be collected and disposed of by licensed collector at CWTC; and Floating refuse of approximately 1.5m³ per year would be trapped within the Project Area. 			<ul style="list-style-type: none"> A trip-ticket system shall be implemented and GPS or equivalent system shall be installed in dump trucks and vessels for delivery of inert C&D materials or marine sediment from the site to disposal locations to avoid illegal dumping and landfilling; If chemical wastes are produced at the construction site, the contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste collector; General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. A reputable waste collector should be employed to remove general refuse on a daily basis; Good management practices for handling and disposal of marine sediments at dedicated marine disposal sites; and 	

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria Relevant	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<ul style="list-style-type: none"> Regular inspection and monitoring of floating refuse will be conducted by contractor at biweekly interval. Waste collection by the contractor will be arranged at biweekly interval. 	
Operational Phase					
<p>The waste transportation routes and the waste disposal site, as well as the waste disposal outlet</p>	<ul style="list-style-type: none"> It is estimated that approximately 260kg of general refuse would be generated per day; It is estimated that maximum of a few hundred litres of chemical waste would be generated per month; and An estimation of 1.5m³ of floating refuse will be accumulated and collected by the contractor. 	<ul style="list-style-type: none"> Waste Disposal Ordinance (Cap. 354) DEVB TCW No. 06/2010 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Reputable waste collector should be employed to remove municipal solid waste regularly; Recycling companies should be arranged to collect the recycled waste as required; Requirements given in the Code of Practice on Packaging, Labelling and Storage of Chemical Wastes should be followed; A trip-ticket system should be operated to monitor all movements of chemical wastes, which would be collected by a licensed collector to a licensed facility; Chemical waste should be recycled as far as possible; and Regular inspection and monitoring of floating refuse will be conducted by MD's contractor, and waste collection and disposal will be arranged as required. 	<ul style="list-style-type: none"> No adverse residual impact anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Land Contamination					
Construction workers and future users within the Project	<ul style="list-style-type: none"> 15 potentially contaminated sites have been identified. When site access is available, environmental site investigation (SI) will be carried out to determine the extent of the contamination, if any. 	<ul style="list-style-type: none"> EIAO-TM Section 3 (Potential Contaminated Land Issues) of Annex 19 “Guidelines for Assessment of Impact on Sites of Cultural Heritage and Other Impacts” Guidance Note for Contaminated Land Assessment and Remediation Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management Practice Guide for Investigation and Remediation of Contaminated Land 	<ul style="list-style-type: none"> The extent of the contamination of 15 potentially contaminated sites if any, will be determined when site access is available and SI works will be carried out. 	<ul style="list-style-type: none"> Supplementary CAP will be submitted to EPD for endorsement before the commencement of environmental SI; Following the completion of SI and lab testing works, a CAR would be prepared to present the findings of the SI and evaluate the level and extent of potential contamination; If potential contamination is identified and remediation actions are required, a RAP will be prepared for submission to EPD; and A Remediation Report (RR) would also be prepared to demonstrate that the clean-up works are adequate. 	<ul style="list-style-type: none"> No adverse residual impact anticipated
Hazard to Life					
Construction Phase					
Population in the vicinity of the Project	<ul style="list-style-type: none"> The societal risk for use of explosives, overnight storage of explosives and transport of explosives are within the “ALARP” region; The individual risk complies with the criterion of Annex 4 of the EIAO-TM; The overall societal risk lies within the “ALARP” region; and 	<ul style="list-style-type: none"> Annex 4 of the EIAO-TM Practice Note for Authorized Persons and Registered Structural Engineers – Control of Blasting (APP-72) Guidance Note No. GN 8 How to Apply for a Mode A Store Licence for Storage of SIDG (Blasting Explosives) Guidance Note No. GN 2 Approval of an Explosives Delivery Vehicle 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> The truck should be designed and improved to reduce the amount of combustibles in the cabin. The fuel carried in the fuel tank should also be minimized to reduce the duration of any fire; 	<ul style="list-style-type: none"> No adverse residual impact anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<ul style="list-style-type: none"> Tai Lam Chung No.2 Chlorination Station will be delisted from Potentially Hazardous Installations Register by the time when the construction works commence and thus risk during the construction phase is not anticipated. 	<ul style="list-style-type: none"> Guidance Note No. GN 3 Application and Handling of a Conveyance Permit 		<ul style="list-style-type: none"> The accident frequency of the explosive truck should be minimized through the implementation of a defensive driving attitude and a dedicated training programme for both driver and his attendants which includes regular briefing sessions. Moreover, drivers should be selected based on good safety record and provided with regular medical checks; The required quantity of explosives should only be transported for a particular blast to avoid any unused explosives send back to the magazine; The contractor should combine the explosive deliveries for a given work area as far as practicable; A minimum headway between two consecutive truck convoys of 10 minutes should be maintained whenever practicable; 	

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<ul style="list-style-type: none"> • To reduce the explosive truck fire involvement frequency, a better emergency response and training should be implemented to ensure adequate fire extinguishers are used and attempt is made to evacuate the area of the incident or securing the explosive load if possible. All explosive vehicles should also be equipped with bigger capacity aqueous film forming formula (AFFF)-type extinguishers; • Each blasting activities including storage and transport of explosives should be supervised and adutied by competent site staff to ensure strict compliance with the blasting permit condition; • Security plan should address different alert security level to reduce opportunity for arson or deliberate initiation of explosives; 	

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<ul style="list-style-type: none"> Follow good practices listed in Practice Note for Authorized Persons and Registered Structural Engineers – Control of Blasting (APP-72), “Guidance Note No. GN 8 How to Apply for a Mode A Licence for Storage of Schedule 1 Dangerous Goods (Blasting Explosives)”, “Guidance Note No. GN 2 Approval of an Explosives Delivery Vehicle” and “Guidance Note No. GN 3 Application and Handling of a Conveyance Permit”; and 	

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				<ul style="list-style-type: none"> Formulate a Hazard Management Plan with a view to aligning the understanding of the risk of the three projects (i.e. Route 11 (R11), Tuen Mun Bypass (TMB) and Lam Tei Underground Quarrying (LTUQ)) 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. 	
Operational Phase					
Population in the vicinity of the Project	<ul style="list-style-type: none"> No potential risk identified since it does not involve any use of explosives 	<ul style="list-style-type: none"> Annex 4 of the EIAO-TM 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> No mitigation measure is required 	<ul style="list-style-type: none"> Not applicable

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria	Relevant Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<ul style="list-style-type: none"> Tai Lam Chung No.2 Chlorination Station will be delisted from Potentially Hazardous Installations Register by the time when the construction works commence and thus risk during the operational phase is not anticipated 				
Ecology					
Construction Phase					
Ecological resources likely to be impacted by the Project	<ul style="list-style-type: none"> Habitat loss; <ul style="list-style-type: none"> Permanent loss of 0.16ha of backshore, 257m of channel, 24.60ha of developed area, 17.54ha of mixed woodland, 91m of natural coastline, 13.93ha of plantation, 4.1ha of seabed, 122m of seawall, 16.47ha of shrubland/grassland and 164m of watercourse; and Temporary loss of 0.09ha of backshore, 90m of channel, 16.85ha of developed area, 6.54ha of mixed woodland, 298m of natural coastline 5.88ha of plantation, 13ha of sea, 49m of seawall and 5.72ha of shrubland/grassland. Harm/Mortality to species of conservation importance/wildlife <ul style="list-style-type: none"> Potential direct impact on five flora species of conservation importance (including <i>Aquilaria sinensis</i>, <i>Diospyros vaccinioides</i>, <i>Gnetum</i> 	<ul style="list-style-type: none"> Annex 8 and 16 of EIAO-TM 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Locate all aboveground works areas outside recognized sites of conservation importance (such as TLCP, “Conservation Area” and Siu Lang Shui Site of Special Scientific Interest), important habitats (Fung Shui Woodlands in So Kwun Wat, Siu Lang Shui Butterfly Habitat and Ma Wan Egrettry, Day Roost and Night Roost) and roosting grounds (Tai Lam Chung Catchwater Tunnel Nos. 1, 5, 6, 7 and 8) to avoid direct impact on them; Avoid reclamation in North Lantau; Adopt tunnelling design if practicable (e.g. within Tai Lam Country Park), refinement/shifting the alignment to minimize mixed woodland loss and slope cutting, maximization of haul road extent overlapping with the main alignment and minimize reclamation footprint in Tsing Lung Tau to minimize habitat loss; 	<ul style="list-style-type: none"> No adverse residual impact is anticipated

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	<p><i>luofuense</i>, <i>Ixonanthes reticulata</i> and <i>Nepenthes mirabilis</i>) recorded within the aboveground works area; and</p> <ul style="list-style-type: none"> ○ Potential direct impact on one fauna species of conservation importance of relatively low mobility (Hong Kong Cascade Frog). <ul style="list-style-type: none"> ● Impact resulting from terrestrial and marine habitat fragmentation; ● Disturbance (e.g. dust, ground-borne vibration, light glare, noise and marine traffic of works vessels) to habitats, wildlife (including species of conservation importance), roosting grounds (especially bat roosts inside Tai Lam Chung Catchwater Tunnel Nos. 1, 5, 6, 7 and 8) ● Ground-borne vibration impact on roosting bats inside Tai Lam Chung Catchwater Tunnel Nos. 1, 5, 6, 7 and 8; ● Light glare impact; ● Impact on quality of terrestrial waterbodies (e.g. surface runoff) and wildlife therein and in the vicinity; ● Groundwater infiltration/drawdown impact; ● Impact on recognized sites of conservation importance <ul style="list-style-type: none"> ○ Tai Lam Country Park ○ “Conservation Area” 			<ul style="list-style-type: none"> ● Select habitat edges as aboveground works areas, maximize the proportion and extent of the tunnel sections and adopt considerable length of viaduct section of the main alignment of the Project to minimize habitat fragmentation; ● Raise the gradient of and elevate the viaduct above the eastern patch of Ching Uk Tsuen Fung Shui Woodland to minimize direct injury/mortality to species of conservation importance (i.e. <i>Ixonanthes reticulata</i>); ● Provide a 7-metre gap between the viaduct above the eastern patch of Ching Uk Tsuen Fung Shui Woodland to minimize shading impact on it; ● Direct artificial lighting towards areas with necessity of lighting only and away from natural habitats at and immediately outside TLCF to minimize glare impact; ● Adopt the mitigation measures listed in Section 5 of EIA report to minimize water quality impacts; ● Adopt good site practice (e.g. confine works within construction site boundary) to minimize indirect disturbance; ● Adopt mitigation measures listed in Section 5 of EIA report to 	

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria Relevant	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<ul style="list-style-type: none"> ○ Siu Lang Shui Site of Special Scientific Interest ● Impact on important habitats (i.e. Siu Lang Shui Butterfly Habitat and Ma Wan Egrettry, Day Roost and Night Roost); ● Impact on terrestrial species of conservation importance, other than bats inside catchwater tunnels, and marine species of conservation importance; ● Impact on habitats <ul style="list-style-type: none"> ○ Agricultural land; ○ Artificial shore; ○ Channels other than WSD’s catchwater tunnels; ○ Tai Lam Chung Catchwater Tunnel Nos. 1, 5, 6, 7 and 8; ○ Developed area; ○ Fung shui woodland (i.e. Li UK, Tin Hau Temple and Ching Uk Tsuen Fung Shui Woodlands) ○ Intertidal habitat (Natural coastline and seawall) ○ Mixed woodland ○ Plantation; ○ Reservoir; ○ Sea; ○ Shrubland/Grassland; and ○ Watercourse (e.g. ditch and the downstream sections of W4, W22, W23 and W24 outside TLCP). ● Indirect marine water quality impact 			<ul style="list-style-type: none"> ○ minimize groundwater infiltration and site runoff; ● Maximize distance between the tunnelling works and the bat roosting grounds; ● Control charge weight and continuous monitoring on ground-borne vibration at Tai Lam Chung Catchwater Tunnel Nos. 1, 5, 6, 7 and 8 and conduct ecological monitoring on the bat roost usage and bats to minimize disturbance to roosting bats; ● Conduct continuous adaptive review on the alert, action and limit levels of ground-borne vibration based on the ground-borne vibration and bat roost monitoring results to be collected during the pre-blasting and blasting phases; ● Suspend blasting works and adopt remedial action including the use of alternative tunnelling method; ● Divert potentially impacted section of watercourses falling within the aboveground works area and adopt green channel design where applicable; ● Conduct compensatory woodland planting to mitigate the area of mixed woodland to be permanently lost and temporarily lost, the feasibility of reinstatement of the latter should be confirmed during 	

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	<ul style="list-style-type: none"> Disturbance due to marine traffic works vessels 			<p>the detailed design phase in advance;</p> <ul style="list-style-type: none"> Conduct pre-construction detailed vegetation survey, submit a detailed transplantation plan for the flora species of conservation importance anticipated to be directly impacted, including but not limited to <i>Aquilaria sinensis</i>, <i>Diospyros vaccinioides</i>, <i>Gnetum luofuense</i>, <i>Ixonanthes reticulata</i> and <i>Nepenthes mirabilis</i>, at detailed design stage and conduct preservation/transplantation of plant of species of conservation importance if feasible; Conduct pre-construction survey of aquatic and water-dependent fauna species of conservation importance at one ditch and section of watercourses to be directly impacted (e.g. W4, W22, W23 and W24), including but not limited to Hong Kong Cascade Frog, and submit translocation plan and conduct translocation of aquatic and water-dependent fauna species of conservation importance where necessary; Conduct detailed reconnaissance dive survey to inspect if there are any additional colonies of hard and/or soft coral species, assess the effectiveness and feasibility of coral translocation if there are 	

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria	Relevant Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				significant colonies, and prepare translocation plan if confirmed translocation is necessary; <ul style="list-style-type: none"> Enhance the seawall with ecological features to increase the overall ecological value, integrity and complexity; and Monitoring of the effectiveness of the mitigation measures on groundwater infiltration. 	
Operational Phase					
Ecological resources likely to be impacted by the Project	<ul style="list-style-type: none"> Disturbance (noise, ground-borne vibration and light glare) impact; Terrestrial and marine habitat fragmentation impact; Light glare impact; Barrier effect to the flight-lines of and loss of foraging habitats of ardeids; Roadkill and bird collision impacts; Adverse water quality impact on terrestrial and marine habitats; Shading effect on the eastern patch of Ching Uk Tsuen Fung Shui Woodland; Air-borne noise and ground-borne vibration caused by moving vehicles; Impact on recognized sites of conservation importance, important habitats, roosting grounds and terrestrial species of conservation importance other 	<ul style="list-style-type: none"> Annex 8 and 16 of EIAO-TM 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Upon all blasting works are completed, ground-borne vibration monitoring, acoustics survey, emergence survey, and bat roost survey will be conducted at Tai Lam Chung Catchwater Tunnel Nos. 1, 5, 6, 7 and 8 for at least 9 months, following the same method and frequency as the baseline monitoring. In addition, within one year from the commencement of the operational phase, monitoring on ground-borne vibration and roosting bats will be conducted for TLC Catchwater Tunnel Nos. 1, 5, 6, 7 and 8 for at least 9 months, covering overwintering, breeding season and time gap between overwintering and breeding season of bats; Direct artificial lighting towards areas with necessity of lighting only and away from natural 	<ul style="list-style-type: none"> No adverse residual impact is anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria	Relevant Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<p>than cave-dwelling bats inside catchwater tunnels:</p> <ul style="list-style-type: none"> ○ Tai Lam Country Park; ○ “Conservation Area”; ○ Fung shui wood in So Kwun Wat; ○ Siu Lang Shui Butterfly Habitat; ○ Ma Wan Egrettry, Day Roost and Night Roost; ○ Terrestrial species of conservation importance other than cave-dwelling bats inside catchwater tunnels; and ○ Marine species of conservation importance (i.e., corals) <ul style="list-style-type: none"> • Impact on marine hydrological regime; • Spillage of chemicals/pollutants; and • Impact due to increased marine traffic. 			<p>habitats to minimize light glare impact;</p> <ul style="list-style-type: none"> • Adopt mitigation measures in Section 5 of EIA report to mitigate water quality impact; • Monitoring of compensatory woodland; • Monitoring of flora species of conservation importance to be preserved, transplanted and/or compensated, if transplantation and/or compensatory planting is/are confirmed necessary; • Monitoring of aquatic and/or water-dependent fauna species of conservation importance (e.g. Hong Kong Cascade Frog) to be translocated, if translocation is necessary; • Adopt tinted materials and superimposing dark patterns or strips on noise barriers to minimize risk of potential bird collision with noise barriers; and • Monitoring of the effectiveness of the mitigation measures on groundwater infiltration 	
Fisheries					
Construction Phase					
Fisheries resources and habitats likely to be impacted by the Project	<ul style="list-style-type: none"> • Permanent loss of 4.1ha of fishing ground due to reclamation and temporary loss of 13ha fishing ground; 	<ul style="list-style-type: none"> • EIAO-TM Annex 9 and Annex 17 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Follow mitigation measures, good practices and guidelines to minimise water quality impacts. 	<ul style="list-style-type: none"> • No adverse residual impact anticipated

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	<ul style="list-style-type: none"> Indirect impact on marine works required for the reclamation of landing area for Tsing Lung Tau including dredging and filling activities; and Indirect impacts on underwater noise. 				
Operational Phase					
Fisheries resources and habitats likely to be impacted by the Project	<ul style="list-style-type: none"> Permanent loss of 4.1ha fishing ground due to 2.2ha reclamation; and No adverse fisheries impact on change of hydrodynamics and deterioration of water quality induced by the reclamation site for Tsing Lung Tau for Tsing Lung Bridge is identified 	<ul style="list-style-type: none"> EIAO-TM Annex 9 and Annex 17 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> No specific mitigation measure is required 	<ul style="list-style-type: none"> Not applicable
Landscape and Visual Impact					
Construction Phase					
Existing Trees, Landscape Resources (LRs) and Landscape Character Areas (LCAs) and Visually Sensitive Receivers (VSRs)	<ul style="list-style-type: none"> Sources of impact include construction works, temporary works and night-time lighting; Around 5,085 of existing trees within the 100m landscape assessment area will be felled; Substantial adverse impacts on LRs including LR-LT1 Secondary Woodlands in Lam Tei, LR-SK1 Secondary Woodlands in So Kwun Wat, LR-SK2 Plantations in So Kwun Wat, LR-SK4 Shrublands in So Kwun Wat, LR-NL4 Shrublands in North Lantau; 	<ul style="list-style-type: none"> TM-EIAO Annexes 3, 10, 11, 18, 20 and 21 EIAO (Cap. 499. S16) and EIAO-TM Annexes 3, 10, 11, 18, 20 and 21 EIAO Guidance Note 8/2010 Preparation of Landscape and Visual Impact Assessment HKPSG Chapters 4, 10 and 11 Protection of Endangered Species of Animals and Plants Ordinance (Cap.586) 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Tree preservation; Tree transplanting; Works Area and Temporary Works Areas; Advance Implementation of Mitigation Planting; Decorative Screen Hoarding; Compensatory planting proposal should have the basic primary objective of planting compensatory trees in a ratio not less than 1:1 in terms of quantity as far as practicable; Landscape reinstatement; Lighting control; 	<ul style="list-style-type: none"> Residual impacts are considered acceptable; Substantial adverse impacts on LRs including LR-NL4 Shrublands in North Lantau;

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	<ul style="list-style-type: none"> Moderate adverse impacts on LRs including LR-LT2 Plantations in Lam Tei, LR-LT11 Developed Areas in Lam Tei, LR-TL2 Plantations / Mixed Woodlands in Tsing Lung Tau, LR-TL11 Developed Areas in Tsing Lung Tau, LR-TL12 Carriageway and Roadside planter at Tsing Lung Tau, LR-NL1 Secondary Woodlands in North Lantau, LR-NL2 Plantations in North Lantau, LR-NL10 Seawater Body and Shorelines at Ha Pang Fairway, LR-NL11 Developed Areas in North Lantau, LR-NL12 Carriageway and Roadside Planter in North Lantau; Slight adverse impacts on LRs including LR-SK11 Developed Areas in So Kwun Wat, LR-SK12 Carriageway and Roadside Planter in So Kwun Wat; Insubstantial adverse impacts on LRs including LR-LT7 Watercourses in Lam Tei, LR-SK7 Watercourses in So Kwun Wat, LR-TL1 Secondary Woodlands in Tsing Lung Tau, LR-TL4 Shrublands in Tsing Lung Tau, LR-TL7 Watercourses in Tsing Lung Tau, LR-NL7 Watercourses in North Lantau; 	<ul style="list-style-type: none"> Town Planning Ordinance and Town Planning (Amendment) Ordinance (Cap. 131) Country Parks Ordinance (Cap. 208) The Forests and Countryside Ordinance (Cap. 96) – Prohibiting the Felling, Cutting, Burning or Destruction of Tress, Growing Plants and Forests on Government Land ETWB TC(W) No. 5/2020 – Registration and Preservation of Old and Valuable Trees 		<ul style="list-style-type: none"> Erection of screen hoarding; and Optimisation of construction areas. 	<ul style="list-style-type: none"> Moderate adverse impacts on LRs including LR-LT1 Secondary Woodlands in Lam Tei, LR-LT2 Plantations in Lam Tei, LR-SK1 Secondary Woodlands in So Kwun Wat, LR-SK2 Plantations in So Kwun Wat, LR-SK4 Shrublands in So Kwun Wat, LR-TL2 Plantations / Mixed Woodlands in Tsing Lung Tau, LR-TL12 Carriageway and roadside planter in Tsing Lung Tau, LR-NL2 Plantations in North Lantau, LR-NL12 Carriageway and roadside planter in North Lantau; Slight adverse impacts on LRs including LR-LT11 Developed Areas in Lam Tei, LR-SK11 Developed Areas in So Kwun Wat, LR-SK12 Carriageway and roadside planter in So Kwun Wat, LR-TL11 Developed Areas in Tsing Lung Tau, LR-NL1 Secondary Woodlands in North Lantau, LR-NL10 Seawater Body and Shorelines at Ha Pang Fairway, LR-NL11 Developed Areas in North Lantau;

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	<ul style="list-style-type: none"> • Substantial adverse impacts on LCAs including LCA-SK4 Tai Lam Country Park Upland Landscape, LCA-SK6 Siu Lam and Tai Lam Chung Foothill Landscape, LCA-NL9 Ng Kwu Leng Peninsular Landscape; • Moderate adverse impacts on LCAs including LCA-LT1 Lam Tei Rural Fringe Landscape, LCA-LT3 Lam Tei Rural Landscape, LCA-SK3 So Kwun Wat Village Landscape, LCA-SK5 Tuen Mun Road Urban Corridor Landscape, LCA-SK7 Tai Lam Chung River Valley Landscape, LCA-TL5 Tsing Lung Tau Urban Landscape, LCA-NL8 Ha Pang Fairway Maritime Landscape, LCA-NL10 North Lantau Highway Corridor Landscape; • Slight adverse impacts on LCAs including LCA-LT2 Lam Tei Upland Fringe Landscape; • Insubstantial adverse impacts on LCAs including LCA-LT4 Lam Tei Upland Landscape, LCA-TL6 To Hang Tung Foothill Landscape, LCA-NL4 North Lantau Fa Peng Teng Upland Landscape; • Substantial adverse impacts on VSRs including Residents of VSR-LT3 Lo Fu Hang, VSR-LT5 Residents of Fuk Hang Tsuen, VSR-LT6 Residents of The Sherwood, 				<ul style="list-style-type: none"> • Insubstantial adverse impacts on LRs including LR-LT7 Watercourses in Lam Tei, LR-SK7 Watercourses in So Kwun Wat, LR-TL1 Secondary Woodlands in Tsing Lung Tau, LR-TL4 Shrublands in Tsing Lung Tau, LR-TL7 Watercourses in Tsing Lung Tau, LR-NL7 Watercourses in North Lantau; • Substantial adverse impacts on LRs including LR-NL4 Shrublands in North Lantau; • Moderate adverse impacts on LCAs including 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;

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	<p>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-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-SK14 Trail Walkers on Tai Lam Chung Reservoir Subsidiary Dam at 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;</p> <ul style="list-style-type: none"> Moderate or Substantial adverse impacts on VSRs including VSR- 				<ul style="list-style-type: none"> Slight adverse impacts on LCAs including LCA-LT1 Lam Tei Rural Fringe Landscape, LCA-LT2 Lam Tei Upland Fringe Landscape, LCA-SK3 So Kwun Wat Village Landscape, LCA-SK5 Tuen Mun Road Urban Corridor Landscape, LCA-TL5 Tsing Lung Tau Urban Landscape, LCA-NL8 Ha Pang Fairway Maritime Landscape, LCA-NL10 North Lantau Highway Corridor Landscape; Substantial adverse impacts for LCAs including LCA-NL9 Ng Kwu Leng Peninsular Landscape; Insubstantial adverse impacts on LCAs including LCA-LT4 Lam Tei Upland Landscape, LCA-TL6 To Hang Tung Foothill Landscape, LCA-NL4 North Lantau Fa Peng Teng Upland Landscape; Substantial adverse impacts for VSR-LT1 Residents of Parkland Villas, VSR-LT2 Residents of Fu Tai Estate, VSR-LT3 Residents of Lo Fu Hang, VSR-LT6 Residents of The Sherwood, VSR-LT5 Residents of Fuk Hang Tsuen, VSR-LT8 Residents

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria	Relevant Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<p>LT1 Residents of Parkland Villas, VSR-LT2 Residents of Fu Tai Estate, VSR-SK5 Residents of Hong Kong Gold Coast;</p> <ul style="list-style-type: none"> Moderate adverse impacts on VSRs including VSR-LT7 Vehicle Travellers on Kong Sham Western Highway (Southbound), VSR-SK7 Residents of Avignon, 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-SK8 Vehicle Travellers and Pedestrians on So Kwun Wat Tsuen Road, VSR-SK13 Vehicle Travellers on 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-SK30 Students and Staff at Hong Kong Customs College, VSR-SK31 Staff and Visitors at Tai Lam Correctional Institution, 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 				<p>of Tsoi Yuen Tsuen, 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-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-TL3 Residents of Hong Kong Garden, and Vista Cove and L'Aquatique;</p> <ul style="list-style-type: none"> Moderate adverse impacts on VSRs including VSR-LT7 Vehicle Travellers on Kong Sham Western Highway (Southbound), VSR-LT9 Vehicle Travellers on Yuen Long Highway (Westbound), 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-

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	<p>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-NL2 Trail Walkers on Summit of Fa Peng Teng, 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-NL8 Residents of Park Island, VSR-NL9 Future Users at Planned Sunny Bay Reclamation Area;</p> <ul style="list-style-type: none"> • Slight or Moderate adverse impacts on VSRs including VSR-LT4 Vehicle Travellers on Yuen Long Highway (Eastbound), VSR-LT9 Vehicle Travellers on Yuen Long Highway (Westbound); • Slight adverse impacts on VSRs including VSR-SK2 Vehicle Travellers on Tuen Mun Road, VSR-SK26 Vehicle Travellers on Castle Peak Road – So Kwun Wat, VSR-SK28 Students and Staff at Chu Hai College of Higher Education, VSR-TL1 Vehicle Travellers on Tuen Mun Road (Westbound), VSR-NL10 Future 				<p>SK5 Residents of Hong Kong Gold Coast, VSR-SK6 Residents of Aegean Coast, VSR-SK7 Residents of Avignon, VSR-SK8 Vehicle Travellers and Pedestrians on So Kwun Wat Tsuen Road, VSR-SK12 Visitors to Glorious Praise Fellowship (Hong Kong) Treatment Centre, VSR-SK13 Vehicle Travellers on Siu Lam Road, 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-SK24 Trail Walkers on Summit of Hill 141, VSR-SK25 Trail Walkers at South of To Hang Tung, VSR-SK29 Residents of Tai Lam Chung Tsuen, VSR-SK30 Students and Staff at Hong Kong Customs College, VSR-SK31 Staff and Visitors at Tai Lam Correctional Institution, 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-</p>

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<p>Vehicle Travellers on Planned Road P1; and</p> <ul style="list-style-type: none"> Insubstantial adverse impacts on VSRs including VSR-LT10 Trail Walkers on Fu Tei Country Trail and Lam Tei Irrigation Reservoir . 				<p>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-NL2 Trail Walkers on Summit of Fa Peng Teng, VSR-NL3 Vehicle Travellers at Lantau Link Toll Plaza, 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-NL8 Residents of Park Island, VSR-NL9 Future Users at Planned Sunny Bay Reclamation Area;</p> <ul style="list-style-type: none"> Slight adverse impacts on VSRs including VSR-LT4 Vehicle Travellers on Yuen Long Highway (Eastbound), VSR-SK2 Vehicle Travellers on Tuen Mun Road, 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-SK28 Students and Staff at Chu Hai

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
					<p>College of Higher Education, VSR-TL1 Vehicle Travellers on Tuen Mun Road (Westbound), VSR-TL11 Pedestrians on Footbridge across Castle Peak Road – Tsing Lung Tau, VSR-TL12 Travellers in Tsing Lung Tau Ferry Pier, VSR-NL4 Travellers in Ma Wan Public Pier, VSR-NL10 Future Vehicle Travellers on Planned Road P1, and</p> <ul style="list-style-type: none"> • Insubstantial adverse impacts on VSRs including VSR-LT10 Trail Walkers on Fu Tei Country Trail and Lam Tei Irrigation Reservoir.
Operational Phase					
<p>Existing Trees, Landscape Resources (LRs) and Landscape Character Areas (LCAs) and Visually Sensitive Receivers (VSRs)</p>	<ul style="list-style-type: none"> • Substantial adverse impacts on LRs including LR-LT1 Secondary Woodlands in Lam Tei, LR-SK1 Secondary Woodlands in So Kwun Wat, LR-SK2 Plantations in So Kwun Wat, LR-SK4 Shrublands in So Kwun Wat, LR-NL4 Shrublands in North Lantau; 	<ul style="list-style-type: none"> • TM-EIAO Annexes 3, 10, 11, 18, 20 and 21 • EIAO Guidance Note 8/2010 Preparation of Landscape and Visual Impact Assessment • HKPSG Chapters 4 and 10 • Protection of Endangered Species of Animals and Plants Ordinance (Cap.586) • ETWB TC(W) No. 29/2004 – Registration of Old and Valuable Trees, and Guidelines for their Preservation 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Integrated Design Approach; • Roadside Buffer Planting / Roadside Planting; • Compensatory Planting Proposals; • Post-Planting Monitoring; • Greening Works on Slopes and Associated Structures; • Design of Tunnel Portals and Landscape Treatment; • Design of an Elegant Bridge Structure and Approach Road; • Provision of Visually Pleasing Aesthetic Treatment of Noise Mitigation Measures; and • Provision of Green Roof. 	<ul style="list-style-type: none"> • Residual impacts are considered acceptable; • Moderate adverse impacts on LRs LR-SK1 including Secondary Woodlands in So Kwun Wat, LR-NL4 Shrublands in North Lantau; and

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	<ul style="list-style-type: none"> Moderate adverse impacts on LRs including LR-LT2 Plantations in Lam Tei, LR-LT11 Developed Areas in Lam Tei, LR-TL2 Plantations / Mixed Woodlands in Tsing Lung Tau, LR-TL11 Developed Areas in Tsing Lung Tau, LR-TL12 Carriageway and roadside planter in Tsing Lung Tau, LR-NL1 Secondary Woodlands in North Lantau, LR-NL2 Plantations in North Lantau, LR-NL10 Seawater Body and Shorelines at Ha Pang Fairway, LR-NL11 Developed Areas in North Lantau, LR-NL12 Carriageway and roadside planter in North Lantau; Slight adverse impacts on LRs including LR-SK11 Developed Areas in So Kwun Wat, LR-SK12 Carriageway and roadside planter in So Kwun Wat; Insubstantial adverse impacts on LRs including LR-LT7 Watercourses in Lam Tei, LR-SK7 Watercourses in So Kwun Wat, LR-TL1 Secondary Woodlands in Tsing Lung Tau, LR-TL4 Shrublands in Tsing Lung Tau, LR-TL7 Watercourses in Tsing Lung Tau, LR-NL7 Watercourses in North Lantau; 	<ul style="list-style-type: none"> Land Administration Office, Lands Department Practice Note Nos. 7/2007 and 7/2007A Tree Preservation and Tree Removal Application for Building Development in Private Projects 			<ul style="list-style-type: none"> Slight adverse impacts on LRs including LR-LT1 Secondary Woodlands in Lam Tei, LR-LT2 Plantations in Lam Tei, LR-SK2 Plantations in So Kwun Wat, LR-SK4 Shrublands in So Kwun Wat, LR-TL2 Plantations / Mixed Woodlands in Tsing Lung Tau, LR-NL2 Plantations in North Lantau;

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	<ul style="list-style-type: none"> Substantial adverse impacts on LCAs including LCA-SK4 Tai Lam Country Park Upland Landscape, LCA-SK6 Siu Lam and Tai Lam Chung Foothill Landscape, LCA-NL9 Ng Kwu Leng Peninsular Landscape; Moderate adverse impacts on LCAs including LCA-LT1 Lam Tei Rural Fringe Landscape, LCA-LT3 Lam Tei Rural Landscape, LCA-SK3 So Kwun Wat Village Landscape, LCA-SK5 Tuen Mun Road Urban Corridor Landscape, LCA-SK7 Tai Lam Chung River Valley Landscape, LCA-TL5 Tsing Lung Tau Urban Landscape, LCA-NL8 Ha Pang Fairway Maritime Landscape, LCA-NL10 North Lantau Highway Corridor Landscape; Slight adverse impacts on LCAs including LCA-LT2 Lam Tei Upland Fringe landscape ; Insubstantial adverse impacts on LCAs including LCA-LT4 Lam Tei Upland Landscape, LCA-TL6 To Hang Tung Foothill Landscape, LCA-NL4 North Lantau Fa Peng Teng Upland Landscape; 				<ul style="list-style-type: none"> Insubstantial adverse impacts on LRs including Watercourses in LR-LT7 Lam Tei, LR-LT11 Developed Areas in Lam Tei, LR-SK7 Watercourses in So Kwun Wat, LR-SK11 Developed Areas in So Kwun Wat, LR-SK12 Carriageway and roadside planter in So Kwun Wat, LR-TL1 Secondary Woodlands in Tsing Lung Tau, LR-TL4 Shrublands in Tsing Lung Tau, LR-TL7 Watercourses in Tsing Lung Tau, LR-TL11 Developed Areas in Tsing Lung Tau, LR-TL12 Carriageway and roadside planter in Tsing Lung Tau, LR-NL1 Secondary Woodlands in North Lantau, LR-NL7 Watercourses in North Lantau, LR-NL10 Seawater Body and Shorelines at Ha Pang Fairway, LR-NL11 Developed Areas in North Lantau, LR-NL12 Carriageway and roadside planter in North Lantau; Moderate adverse impacts on LCAs including LCA-NL9 Ng Kwu Leng Peninsular Landscape;

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	<ul style="list-style-type: none"> Substantial adverse impacts on VSRs including Residents of VSR-LT3 Lo Fu Hang, VSR-LT5 Residents of Fuk Hang Tsuen, VSR-LT6 Residents of The Sherwood, VSR-LT8 Residents of Tsoi Yuen Tsuen, VSR-SK1 Trail Walkers on MacLehose Trail Section 10 (West), VSR-SK9 Trail Walkers on MacLehose Trail Section 10 (East), VSR-SK11 Residents of So Kwun Wat San Tsuen, 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-TL3 Residents of Hong Kong Garden, Vista Cove and L'Aquatique; 				<ul style="list-style-type: none"> Slight adverse impacts on LCAs including 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; Insubstantial adverse impacts on LCAs including LCA-LT1 Lam Tei Rural Fringe Landscape, LCA-LT2 Lam Tei Upland Fringe Landscape, LCA-LT4 Lam Tei Upland Landscape, LCA-SK3 So Kwun Wat Village Landscape, LCA-SK5 Tuen Mun Road Urban Corridor Landscape, LCA-TL5 Tsing Lung Tau Urban Landscape, LCA-TL6 To Hang Tung Foothill Landscape, LCA-NL4 North Lantau Fa Peng Teng Upland Landscape, LCA-NL8 Ha Pang Fairway Maritime Landscape, LCA-NL10 North Lantau Highway Corridor Landscape;

	<ul style="list-style-type: none"> • Moderate or Substantial adverse impacts on VSRs including VSR-LT1 Residents of Parkland Villas, VSR-LT2 Residents of Fu Tai Estate, VSR-LT11 Future Residents of Potential Residential Development at Brownfield Clusters in Lam Tei North and Nai Wai, VSR-SK3 Residents of The Bloomsway, VSR-SK4 Students and Staff at Harrow International School Hong Kong, VSR-SK6 Residents of Aegean Coast, VSR-SK10 Residents of So Kwun Wat Tsuen; • Moderate adverse impacts on VSRs including VSR-LT7 Vehicle Travellers on Kong Sham Western Highway (Southbound), VSR-SK8 Vehicle Travellers and Pedestrians on So Kwun Wat Tsuen Road, VSR-SK12 Visitors to Glorious Praise Fellowship (Hong Kong) Treatment Centre, 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-SK24 Trail Walkers on Summit of Hill 141, VSR-SK25 Trail Walkers at South of To Hang Tung, VSR-SK29 Residents of Tai Lam Chung Tsuen, VSR-SK30 Students and Staff at Hong Kong Customs College, VSR-SK31 Staff and Visitors at Tai Lam Correctional Institution, VSR-TL2 Residents of Bellagio and Ocean Pointe, VSR-TL4 Vehicle 				<ul style="list-style-type: none"> • Moderate adverse impacts for VSR-LT2 Residents of Fu Tai Estate, VSR-LT3 Residents of Lo Fu Hang, 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-LT5 Residents of Fuk Hang Tsuen, 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
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Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria	Relevant Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<p>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-NL2 Trail Walkers on Summit of Fa Peng Teng, 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-NL8 Residents of Park Island, VSR-NL9 Future Users at Planned Sunny Bay Reclamation Area;</p> <ul style="list-style-type: none"> Slight or Moderate adverse impacts on VSRs including VSR-SK5 Residents of Hong Kong Gold Coast, VSR-SK13 Vehicle Travellers on Siu Lam Road; 				<p>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;</p>

	<ul style="list-style-type: none"> • Slight adverse impacts on VSRs including VSR-SK2 Vehicle Travellers on Tuen Mun Road, VSR-SK7 Residents of Avignon, 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-SK28 Students and Staff at Chu Hai College of Higher Education, VSR-TL1 Vehicle Travellers on Tuen Mun Road (Westbound), VSR-NL10 Future Vehicle Travellers on Planned Road P1; • Insubstantial or Slight adverse impacts on VSRs including VSR-LT4 Vehicle Travellers on Yuen Long Highway (Eastbound), VSR-LT9 Vehicle Travellers on Yuen Long Highway (Westbound); and • Insubstantial adverse impacts on VSRs including VSR-LT10 Trail Walkers on Fu Tei Country Trail and Lam Tei Irrigation Reservoir. 				<ul style="list-style-type: none"> • Slight adverse impacts for 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-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-SK23 Vehicle Travellers and Pedestrians on Castle Peak Road – Tai Lam, VSR-SK25 Trail Walkers at South of To Hang Tung, 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
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Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
					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-NL8 Residents of Park Island, VSR-NL9 Future Users at Planned Sunny Bay Reclamation Area; and

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					<ul style="list-style-type: none"> • Insubstantial residual impact in Year 10 of the operational phase, namely, VSR-LT10 Trail Walkers on Fu Tei Country Trail and Lam Tei Irrigation Reservoir, VSR-SK28 Students and Staff at Chu Hai College of Higher Education, VSR-NL10 Future Vehicle Travellers on Planned Road P1.
Cultural Heritage					
Construction Phase					
Terrestrial archaeology	<ul style="list-style-type: none"> • No adverse impact on the sites of archaeological interest identified within or near the Project; and • An area of archaeological potential at the east of Area A at the lower slopes to the north of Lam Tei Quarry within the works area would require further archaeological investigation to verify the presence of any archaeological remains. 	<ul style="list-style-type: none"> • Antiquities and Monuments Ordinance (Cap. 53) • EIAO including EIAO-TM • Guidelines for Cultural Heritage Impact Assessment 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Testing including field scan, auger tests and test pit excavation within the non-tested area of archaeological potential is recommended to be conducted by an archaeologist who obtains a licence under the Antiquities and Monuments Ordinance (Cap. 53); and • AMO should be informed immediately in case of discovery of antiquities or supposed antiquities in the course of the project works for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO. 	<ul style="list-style-type: none"> • No adverse residual impact anticipated

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Built heritage	<ul style="list-style-type: none"> There is no Declared Monuments, Proposed Monuments, Graded Historic Buildings and Government Historic Sites. Former Perowne Barracks, Gurkha Temple, a grade 3 structure will require mitigation during the construction phase as it is in close proximity of earthworks (around 11m). 	<ul style="list-style-type: none"> Antiquities and Monuments Ordinance (Cap. 53) EIAO including EIAO-TM Guidelines for Cultural Heritage Impact Assessment AMO Proposed Vibration Limits Proposed Grading and Graded Historic Buildings Classification 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> A condition survey be undertaken by qualified building surveyor or engineer prior and after the construction phase. The relevant works drawings and proposal shall be submitted to AMO for consideration; The Condition Survey Report for the graded historic building shall be submitted to AMO for comment before commencement and after construction activities. The locations of proposed monitoring points in the building should avoid damaging the historic fabric and agreed by the owner and Antiquities and Monuments Office (AMO). The contractor should implement the approved monitoring and precautionary measures; Any vibration and building movement induced from the construction works should be strictly monitored to ensure no disturbance and physical damages made to the heritage site during the course of works. Monitoring proposal for the heritage sites, including checkpoint locations, installation details, response actions for each of the Alert/ Alarm/ Action (3As) levels and frequency of monitoring should be submitted for AMO's 	<ul style="list-style-type: none"> No adverse residual impact anticipated

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				<p>consideration. The recommended 3As levels for Grade 3 heritage site are specified in the EM&A Manual;</p> <ul style="list-style-type: none"> • A buffer zone should be provided to separate the Former Perowne Barracks, Gurkha Temple building from the construction works. The buffer zone should be clearly marked out by temporary fencing. The buffer zone should be made at least 5m from the proposed works or if this is not possible as large as the site restrictions allow; • Special attention should be paid to the heritage site to avoid adverse physical impact arising from the construction of the Project. Design proposal, method of works and choice of machinery will be targeted to minimize adverse impacts to the heritage site; • Foundation information of the historic structure shall be verified on site if needed, sufficient lateral support should be provided and de-watering (if required) should be carried out with great cautions to control ground movement and change of ground water regime at the heritage site; and 	

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Standards/Criteria Relevant	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<ul style="list-style-type: none"> • AMO should be informed immediately in case of discovery of buildings / structures both at-grade and underground with potential heritage value that would likely be affected by the development in the course of the project works for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO. 	
Marine archaeology	<ul style="list-style-type: none"> • 19 anomalies were identified from geophysical surveys; • In addition, due to shallow water depth along the coast, geophysical survey could not be conducted in this area. Therefore, it is proposed to dive every 50m along this area (i.e. 35 dive targets); and • After consulting with Marine Department, it is recommended to conduct the marine diver survey when fencing off of the diving area could be safely implemented but prior to any reclamation works, i.e. during the detailed design stage. 	<ul style="list-style-type: none"> • Antiquities and Monuments Ordinance (Cap. 53) • EIAO including EIAO-TM • Guidelines for Cultural Heritage Impact Assessment 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Marine diver survey shall be conducted during the detailed design stage when fencing off can be implemented but prior to any reclamation works; • Should there be any marine archaeological resources identified during the marine ground investigation 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; 	<ul style="list-style-type: none"> • No adverse residual impact anticipated

Sensitive Receivers / Assessment Points	Impact Prediction Results	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<ul style="list-style-type: none"> • If the marine ground investigation works is required prior to the diver survey, it shall be arranged to avoid all the anomalies identified by geophysical survey conducted, by allowing sufficient setback distance (around 50m) from the anomalies; • Any marine GI works at the anomalies is required to be conducted after confirming their nature by MAI and seeking agreement with AMO; and • In case 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. 	
Operational Phase					
Terrestrial archaeology, built heritage and marine archaeology	<ul style="list-style-type: none"> • Adverse impact to terrestrial archaeology, built heritage and marine archaeology is not anticipated. 	<ul style="list-style-type: none"> • Antiquities and Monuments Ordinance (Cap. 53) • EIAO including EIAO-TM; • Guidelines for Cultural Heritage Impact Assessment • HKPSG • Proposed Grading and Graded Historic Buildings Classification 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • No mitigation measure is required 	<ul style="list-style-type: none"> • No adverse residual impact anticipated