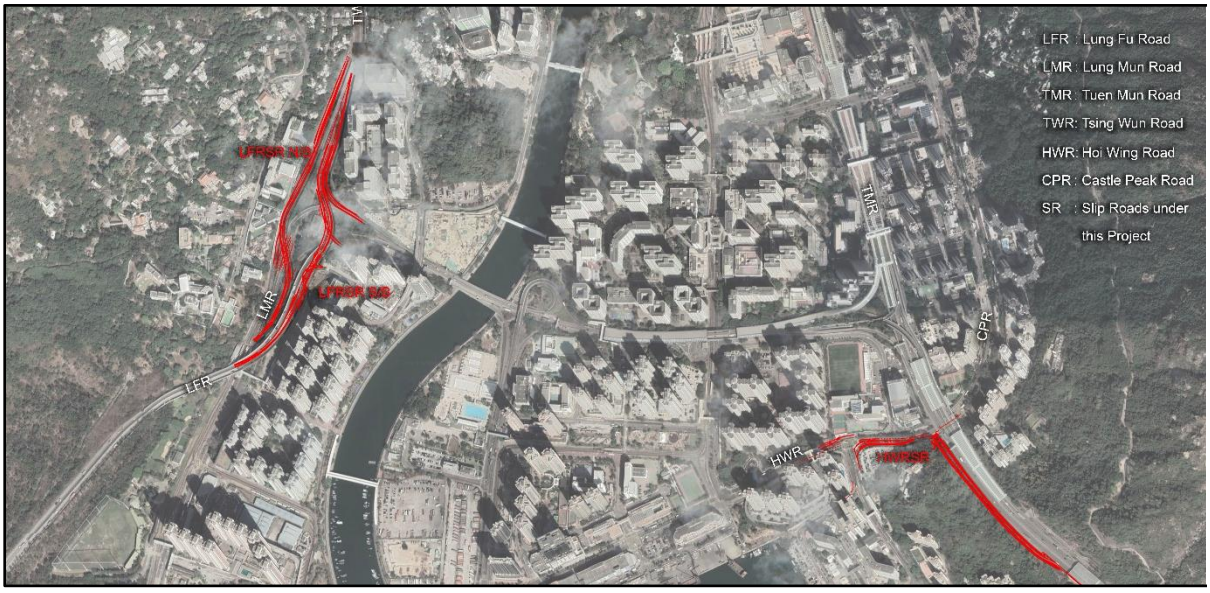
HIGHWAYS DEPARTMENT

TRAFFIC IMPROVEMENT SCHEME IN TUEN MUN – WIDENING AND ADDITION OF SLIP ROADS AT LUNG FU ROAD/ TUEN MUN ROAD/ WONG CHU ROAD/ HOI WING ROAD

ENVIRONMENTAL IMPACT ASSESSMENT

Executive Summary



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Environmental Impact Assessment

Executive Summary

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1 INTRODUCTION

1.1 BACKGROUND

1.1.1 The title of the Project is "Traffic Improvement Scheme in Tuen Mun – Widening and Addition of Slip Roads at Lung Fu Road / Tuen Mun Road / Wong Chu Road / Hoi Wing Road" (hereinafter referred to as the Project).

1.1.2 The traffic flow within Tuen Mun District, including Tuen Mun Road (Town Centre Section) (TMR (TCS)) and its slip roads to and from Wong Chu Road (WCR), has been gradually increasing after the commissioning of Tuen Mun - Chek Lap Kok Tunnel (TM-CLKT). It is anticipated that traffic congestion levels of the major roads in the locality could only be manageable up to 2026.

1.1.3 Under the original planning, Tuen Mun Bypass (TMB) is designed to connect with the TM-CLKT as the main access for TM-CLKT traffic coming from or accessing to the northwest part of New Territories in the long-term and to relieve the capacity problem of TMR and WCR. In view of the investigation studies of TMB currently being carried out, there is an imminent need to implement traffic improvement measures to cope with the anticipated increase in traffic flow in the road networks of Tuen Mun. Several traffic improvement schemes are proposed under the Project to divert traffic flows from the heavily trafficked routes in Tuen Mun.

1.1.4 The location of the Project and layouts of the Project are shown in **Figures 2.1** to **2.4**.

1.1.5 The Project Profile of the Project No. PP-620/2021 was submitted to the Environmental Protection Department (EPD) on 3 May 2021 under EIAO and the Environmental Impact Assessment (EIA) Study Brief No. ESB-339/2021 (hereinafter referred to as "the Study Brief") for the Project was issued on 9 June 2021 under the EIAO.

1.2 SCOPE OF PROJECT

1.2.1 The scope of the Project mainly comprises:

(i) Construction of a single lane elevated road of approximate 800m long connecting Tsing Wun Road (TWR) southbound (SB) to the existing elevated Lung Fu Road (LFR) SB (hereinafter referred to as LFRSR-SB);

(ii) Modification of the existing at-grade slip road of 150m long approximately connecting TWR SB and WCR Eastbound (EB) affected by LFRSR-SB;

(iii) Construction of a single lane elevated road of approximate 600m long connecting the existing elevated LFR northbound (NB) to TWR NB (hereinafter referred to as LFRSR-NB);

(iv) Modification of the existing at-grade slip road connecting WCR westbound (WB) to TWR NB;

(v) Construction of a single lane at-grade slip road of approximate 550m long connecting TMR NB to Castle Peak Road (Castle Peak Bay Section) (CPR (CPBS)) WB, near Hoi Wing Road (HWR) (hereinafter referred to as HWRSR); and

(vi) Ancillary works including geotechnical, drainage, sewerage, water, utilities, lighting, landscaping, noise mitigation measures, retaining walls, slopeworks, and traffic improvement works.

1.2.2 The Project comprises the following Designated Projects (DPs) elements under Part I, Schedule 2 of the EIAO (Cap.499):

- Item A.1, Part I - A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing roads; and
- Item A.8, Part I - A road or railway bridge more than 100m in length between abutments.

1.3 ENVIRONMENTAL IMPACT ASSESSMENT STUDY

1.3.1 An EIA Study was conducted for the Project in accordance with the requirements of the Study Brief and the *Technical Memorandum on Environmental Impact Assessment Process* (EIAO-TM). The purpose of the EIA study is to address potential environmental impacts arising from the construction and operation of the Project and the associated works that take place concurrently. This information will contribute to decisions on:

- the overall acceptability of any adverse environmental consequences that are likely to arise as a result of the Project;
- the conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences wherever practicable; and
- the acceptability of residual impacts after the proposed mitigation measures are implemented.

1.4 PURPOSE OF THE EXECUTIVE SUMMARY

1.4.1 This Executive Summary (ES) summarises the key information, findings, recommendations and conclusions of the EIA Report for the Project.

2 PROJECT DESCRIPTION

2.1 OBJECTIVE OF THE PROJECT

2.1.1 The objective of the Project is to relieve the anticipated traffic congestion problems within Tuen Mun area before the commissioning of the TMB by providing additional road links, including LFRSR-NB, LFRSR-SB and HWRSR, as a medium-term mitigation measure.

2.1.2 After completion of the Project, the attractiveness of Tsing Tin Road, Ming Kam Road, TWR, Tuen Mun Area 40 and TM-CLKT will be enhanced.

2.2 NEED OF THE PROJECT

2.2.1 After its commissioning, TM-CLKT attracts traffic heading to or coming from the north-western New Territories. Currently, access between the north-western part of the New Territories and TM-CLKT is mainly via TMR and WCR. It is anticipated that the aforementioned road links will become over-capacity beyond 2026. It is envisaged that TMR and WCR will remain the main traffic corridors in Tuen Mun for the considerable future till TMB is commissioned. Medium-term mitigation measures to alleviate the traffic situation in Tuen Mun area before the completion of TMB are therefore necessary.

Provision of LFRSR

2.2.2 As currently there is no direct connection between existing elevated LFR and TWR, the closely spaced signalised junctions along this alternative route makes it less preferred by the motorists and results in low usage. Most motorists still prefer to access the existing elevated LFR via the already heavily trafficked WCR. After completion of LFRSR, traffic travelling between TM-CLKT and TWR can make use of existing elevated LFR and LFRSR to bypass the aforementioned closely spaced signalised junctions. As a result, the attractiveness of this alternative route will be increased. Thus, it is anticipated that the traffic congestion situation on TMR and WCR during peak hours will be alleviated.

Provision of HWRSR

2.2.3 Currently, there is no direct connection between TMR (Sam Shing Section) NB and the southern part of Tuen Mun near CPR(CPBS) or HWR. Traffic coming from Kowloon towards the southern part of Tuen Mun has to travel via WCR. The proposed HWRSR running from TMR (Sam Shing Section) NB to CPR(CPBS) WB near HWR provides a direct connection for these traffic. Upon completion of HWRSR under the Project, a portion of traffic from southeast heading to southern part of Tuen Mun originally travelling along WCR would be diverted to this new HWRSR. Thus, it will help to alleviate the traffic congestion on WCR during peak hours. Moreover, the accessibility of the southern part of Tuen Mun from TMR NB would also be enhanced.

2.3 CONSIDERATION OF ALIGNMENT OPTIONS

2.3.1 The alignment of the new road links has a number of pre-determined items that cannot be changed in order to maintain the connectivity to the existing road network. For example, connections points of the new road links are fixed in order to improve the traffic conditions on certain major roads. Throughout the evaluation process of the alignment options for the Project,

environmental considerations including construction dust, noise, ecology, water quality, and cultural heritage, etc. during the construction and operation phases have been thoroughly reviewed and evaluated. Apart from the environmental considerations, other engineering aspects such as interface with existing/planned facilities, nature of traffic, land issue, construction programme, constructability as well as public interest, and required construction time and cost, etc. have also been taken into consideration.

2.3.2 Striking the balance among different aspects, the preferred alignments for LFRSR-SB, LFRSR-NB and HWRSR (refer to **Figures 2.2**, **2.3** and **2.4** respectively) have been developed with potential environmental impacts of the Project taken into consideration, with a view to reducing nuisance and environmental impacts to the residents nearby and local stakeholders as much as possible.

2.4 CONSTRUCTION METHODOLOGY

2.4.1 The methodology for the construction of the Project has been conducted with due consideration for overcoming the difficult site conditions and/or site constraints as well as the complexity of the road alignment.

2.4.2 Possible construction methods which have been investigated for the construction of the Project and the reasons for selection are summarised below.

LFRSR-NB & LFRSR-SB

2.4.3 The elevated LFRSR-SB & LFRSR-NB connecting TWR and the existing LFR viaducts will be in form of prestressed concrete viaducts. Various methods for the construction of deck structures, including the precast method or cast-in-situ method have been considered. The cast-in-situ with ground-supported falsework method is recommended as it is favourable to the construction of the elevated LFRSR-SB & LFRSR-NB in terms of environmental impacts and engineering aspects.

2.4.4 Construction of deck structures using precast method would most likely be required to be carried out at night-time period. In contrast, for cast-in-situ works with ground-supported falseworks method, the falseworks can be erected and dismantled during non-restricted hours under normal circumstances. Therefore, with night-time construction noise impact not anticipated, this method is more preferrable than precast method from an environmental perspective. In addition to environmental consideration, this method will also be favourable in expediting the construction programme.

HWRSR

2.4.5 The slip road section of HWRSR will be constructed with reinforced concrete, consisting of a slab under the road and retaining walls on both sides of the road section. Along the HWRSR alignment, the proposed at-grade road will require excavation for the construction of the slip road. Various methods for the excavation, including open-cut excavation and excavation and lateral support (ELS) systems have been considered. ELS system comprising pipe pile wall is recommended as it is favourable to the construction of the HWRSR in terms of environmental impacts and engineering aspects.

2.4.6 ELS method could reduce the amount of excavated material generated, as well as dust generation, as compared with traditional open-cut excavation method. ELS involves driving piles into position which could result in potential noise impacts. To tackle this, silent, press-in techniques can be adopted to reduce the noise impacts and vibration associated with pipe pile installation.

2.5 WORK PROGRAMME

The construction of the Project is scheduled to commence in mid-2024 and to be completed by 2031 tentatively.

2.6 CONCURRENT PROJECTS

2.6.1 Concurrent projects in the vicinity of the Project site are identified. The key details of these identified planned/committed projects are summarised in **Table 2.1**. Potential cumulative impacts from these concurrent projects have been considered in this EIA Study as appropriate.

Table 2.1 Summary of Concurrent Projects

Project [Project Proponent]	Construction Programme		Potential Cumulative Impact	
	Start	Complete	Construction Phase	Operation Phase
Site Formation and Infrastructure Works for Public Housing Developments at Tuen Mun Central – Phase 1 [CEDD] [1]	2021	Q3/2024	Cumulative construction dust is not anticipated as heavy construction works of this concurrent project would be completed before commencement of the Project. Cumulative noise impact was evaluated in Section 4 of this EIA Report.	Not anticipated in view of the nature of the concurrent project.
Construction of Public Housing Development (PHD) at Yip Wong Road Phase 1 and Phase 2 [HD] [2]	2020	2024-2025	Cumulative dust and noise impacts were evaluated in Section 3 and 4 of this EIA Report respectively.	Not anticipated in view of the nature of the concurrent project.
Cycle track between Tsuen Wan and Tuen Mun (Tuen Mun to So Kwun Wat Section) [CEDD] [3]	2023	2026	Cumulative dust and noise impacts were evaluated in Section 3 and 4 of this EIA Report respectively.	Not anticipated in view of the nature of the concurrent project.
Tuen Mun South Extension [MTRCL] [4]	2023	2030	Cumulative dust and noise impacts were evaluated in Section 3 and 4 of this EIA Report respectively.	Not anticipated in view of the nature of the concurrent project.
Tuen Mun Bypass Project [HyD]	2026	2033	Cumulative dust and noise impacts were evaluated in Section 3 and 4 of this EIA Report respectively.	Cumulative air quality and noise impacts were evaluated in Section 3 and Section 4 of this EIA Report respectively. Due to considerable separation distance between the Project and this concurrent project, the cumulative impact is anticipated to be insignificant.
Reprovision of Tuen Mun Swimming Pool, Tuen Mun Golf Centre Practice Green, Pet Garden and Community Green Station [MTRCL] [4]	2023	2030	Cumulative dust and noise impacts were evaluated in Section 3 and 4 of this EIA Report respectively.	Not anticipated in view of the nature of the concurrent project.

Project [Project Proponent]	Construction Programme		Potential Cumulative Impact	
	Start	Complete	Construction Phase	Operation Phase
Sports Ground and Open Space in Area 16, Tuen Mun [ArchSD] [5]	2023-2024	2027-2028	Not Anticipated due to considerable separation distance between the Project and this concurrent project.	Not anticipated in view of the nature of the concurrent project.

Notes:

[1] Source: PWSC Paper at https://www.legco.gov.hk/yr20-21/english/fc/pwsc/papers/p20-18e.pdf

[2] Source: LegCo Paper at https://www.legco.gov.hk/yr2022/english/panels/hg/papers/hg20220207cb1-33-1-e.pdf

[3] Source: EIA report at https://www.epd.gov.hk/eia/register/report/eiareport/eia_2802022/CONTENT%20PAGE.htm

[4] Source: EPD's website at https://www.epd.gov.hk/eia/register/profile/latest/esb332/esb332.pdf

[5] Source: ArchSD's webpage at https://www.archsd.gov.hk/en/projects/capital-projects-under-detail/278RS.html

2.7 PUBLIC CONCERNS

2.7.1 Consultation activity with the Traffic and Transport Committee (T&TC) of Tuen Mun District Council (TMDC) was carried out in February and April 2021. Although the TMDC's concerns mainly focus on traffic within Tuen Mun area, one particular environmental concern (as shown below) was noted. Public views related to environmental will be taken into consideration during the design of the Project with an aim to avoid the minimise potential environmental impacts with adoption of appropriate mitigation measures.

Concerns / Issues	Follow Up Actions to be Taken
More congested traffic on TWR causing noise problems	The noise impact assessment during both the construction and operation phases conducted for the affected sensitive receivers have complied with the requirements set out in the EIAO-TM. Suitable mitigation measures will be implemented during the construction and operation phases as recommended in the EIA.

3 KEY FINDINGS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

3.1 APPROACH TO THE EIA

3.1.1 The EIA process provides a means of identifying, assessing and reporting the environmental impacts associated with the construction and operation of the Project based on the engineering design information available at this stage. It is an iterative process that has been followed in parallel with the design process to identify the potential environmental issues of various design options, and develop alternatives as well as appropriate mitigation measures to be incorporated into the design, construction and operation of the Project. Public views will also be considered and incorporated into the design and EIA process where appropriate. Mitigation measures have been recommended to avoid some potential environmental impacts, while others are minimized or mitigated to acceptable levels.

3.1.2 The findings of this EIA study have determined the likely nature and extent of the following environmental impacts predicted to arise from the construction and operation of the Project:

- Air Quality;
- Noise;
- Water Quality;
- Waste Management;
- Land Contamination;
- Ecology;
- Landscape and Visual; and
- Cultural Heritage

3.2 AIR QUALITY

3.2.1 Potential air quality impacts associated with the construction and operation phases of the Project have been assessed in accordance with Clause 3.4.4.2 of the Study Brief, as well as Annex 12 of EIAO-TM. The assessment area for air quality impact assessment is within 500m from the boundary of the Project Site and the work areas of the Project.

3.2.2 Potential air quality impact from the construction works of the Project would mainly be related to construction dust from site clearance, slope works, piling works and superstructure works which involve excavation and handling of excavated materials. The key air pollutants of concern arising from the construction of the Project include Total Suspended Particulates (TSP), Respirable Suspended Particulates (RSP), Fine Suspended Particulates (FSP). Considering the minor excavation works with limited extent of the excavation areas at any one time, no adverse dust and air quality impact arising from the construction activities of the Project is anticipated with the implementation of mitigation measures specified in the Air Pollution Control (Construction Dust) Regulation together with the recommended dust suppression measures and good construction site practices, including establishment and use of vehicle wheel and body washing facilities at exit points of the works site, keeping all exposed areas wet or covering by impervious sheets at all times, and spraying all dusty materials with water/ dust suppression chemical immediately prior to any loading, unloading or transfer operation,

and regular dust monitoring to ensure the relevant legal requirements and standards are complied with during construction phase of the Project.

3.2.3 During operation of the Project, vehicular emissions from new roads of the Project have the potential to cause air quality impact to the nearby air sensitive receivers (ASRs). The key air pollutants of concern due to operation of the Project are from vehicular emissions, including Nitrogen Dioxide (NO_2), RSP and FSP. A quantitative assessment has been conducted taking into account vehicular emissions from the new roads of the Project and existing road networks within the 500m Study Area, other adjacent emission sources (including marine and industrial emissions) within the 500m Study Area, as well as the background air quality. The prediction indicated the cumulative NO_2, RSP and FSP impacts at all identified ASRs would comply with the prevailing Air Quality Objectives (AQOs). Adverse air quality impact arising from the operation of the Project is thus not anticipated.

3.3 NOISE

3.3.1 The potential noise impacts associated with the construction and operation of the Project has been conducted in accordance with the requirements of Annex 5 and Annex 13 of EIAO-TM as well as the requirements set out under Clause 3.4.5 and Appendix C of the Study Brief. The assessment area for noise impact assessment is defined by a distance of 300m from the boundary of the Project site and the works of the Project.

3.3.2 Potential construction noise impacts would mainly be due to the use of powered mechanical equipment (PME) from road works construction. The key construction works include site clearance, slope works, piling works and superstructure works. The assessment results indicated that the predicted noise levels are in the range of 71 dB(A) to 91 dB(A). With the implementation of the recommended noise mitigation measures, such as use of quality PME, movable noise barriers/ noise enclosure/ noise insulation fabric for PME, and scheduling of construction activities, the mitigated construction noise levels arising from the Project at the identified noise sensitive receivers (NSRs) would be in the range of 57 dB(A) to 75 dB(A) which comply with the EIAO-TM construction noise criteria (excluding examination period for schools).

3.3.3 It is recommended that the Contractor shall liaise with the school's management for the schedule of construction works, to avoid carrying out noisy construction activities during the examination period.

3.3.4 The potential road traffic noise impacts have been assessed based on the Year 2036 traffic forecast, which is the maximum projected traffic level within 15 years upon operation of the Project. With the provision of the recommended noise mitigation measures, i.e. low noise road surfacing (LNRS) on LFRSR-NB and LFRSR-SB, the noise levels at NSRs would comply with the noise standards, or that the noise contribution from Project roads to the overall noise levels at all representative NSRs would be less than 1.0dB(A). Adverse noise impact arising from the operation of the Project is thus not anticipated.

3.4 WATER QUALITY

3.4.1 The potential water quality impacts associated with the construction and operation of the Project has been conducted in accordance with the requirements of Annex 6 and Annex 14 of EIAO-TM as well as the requirements set out under Clause 3.4.6 and Appendix D of the Study Brief.

3.4.2 Potential sources of water quality impact associated with the Project include construction site runoff, discharges from construction activities and sewage effluents from the on-site workforce. Chemical wastes would also be produced from the use of chemicals and accidental spillage of chemicals/ chemical wastes during construction. With the implementation of the recommended management and mitigation measures, including surface control measures stipulated in

ProPECC PN 1/94 and regular cleansing and maintenance of the chemical toilets, no unacceptable water quality impact is expected from the land-based construction activities.

3.4.3 Potential water quality impacts associated with the operation phase were identified as surface runoff generated from the proposed roads. Such runoff typically contains elevated levels of suspended solids, grits, trace amounts of oil and grease from vehicles, which could affect the water quality of the receiving waters. A road drainage system with appropriate silt or grit traps will be provided to collect runoff from the road surface during periods of rain. With the implementation of proposed mitigation measures and management practices, no adverse water quality impact during the operation phase is anticipated.

3.5 WASTE MANAGEMENT IMPLICATIONS

3.5.1 The assessment of potential waste management implications associated with the Project has been conducted in accordance with the requirements of Annex 7 and Annex 15 of EIAO-TM as well as the requirements set out under Clause 3.4.7 and Appendix E of the Study Brief.

3.5.2 Wastes generated by the construction activities including site clearance, minor slope and excavation works, as well as piling and superstructure works, are likely to include construction and demolition (C&D) materials from the construction works, general refuse from the workforce and chemical waste from any maintenance of the construction plant and equipment. Provided that these identified waste arising are handled, transported and disposed of using approved methods and that the recommended good site practices are strictly followed, adverse environmental impacts related to waste management are not anticipated during the construction works.

3.5.3 Reduction measures have been recommended to minimise the amount of materials generated from the Project requiring off-site disposal. Based on the latest construction scheme, it is estimated that a total of 48,167m^3 of inert C&D materials will be generated during the construction phase, 26,985m^3 would be reused on site as far as practicable, while the remaining 21,182m^3 will be disposed of at the public fill reception facilities (i.e. Tuen Mun Area 38 Fill Bank). For non-inert C&D materials, it is estimated a total of 4,775m^3 will be generated during the construction phase, where the recyclables such as plastics and packaging materials will be segregated on site as far as practicable for recycling. The non-inert C&D materials that cannot be recycled will be delivered to the landfills (i.e. West New Territories Landfill (WENT) or the proposed WENT extension) for disposal.

3.5.4 No waste is expected to be generated during the operation phase of the Project. There would be no adverse environmental impacts related to waste management during the operation phase.

3.6 LAND CONTAMINATION

3.6.1 The assessment of potential land contamination issues associated with the Project has been conducted in accordance with the requirements of Section 3.1 of Annex 19 of EIAO-TM as well as the requirements set out under Clause 3.4.8 and Appendix F of the Study Brief.

3.6.2 Based on the findings of historical/current land uses, desktop review, site visits, site inspections and other relevant information from related government departments, no potential land contamination issue is identified within the Project Site. Potentially contaminating activities or land uses associated with the Project are also not anticipated.

3.7 ECOLOGY

3.7.1 The potential ecological impacts associated with the construction and operation phases of the Project haves been assessed in accordance with the requirements of Annex 8 and Annex 16 of EIAO-TM as well as the requirements set out under Clause 3.4.9 and Appendix G of the Study Brief. The assessment area for ecological impact assessment is within 500m from the boundary of the Project Site and the work areas of the Project.

3.7.2 Key potential ecological direct impacts caused by the Project include permanent loss of a small area (0.08 ha) of mixed woodland in the HWRSR Site which is anticipated to be of minor potential impact considering the low ecological values of these habitats. Also, it will be mitigated by compensatory tree planting, which is discussed in the Landscape and Visual Section below. Other habitats loss include permanent loss of 1.54 ha of developed area and 1.1 ha of plantation, and temporary loss of about 0.85 ha (the actual size will be subjected to the later stage of the Project) plantation. Permanent loss of developed area and plantation are considered of insignificant potential impact, as these habitats are man-made in nature and supporting low diversity and abundance of fauna and low diversity of flora; therefore, no mitigation to compensate the ecological value is needed. The potential impact caused by temporary loss of plantation is considered insignificant as it is man-made and is easily recreated, it will be reinstated by tree planting after construction. With the implementation of the mentioned mitigation measures, no unacceptable residual ecological impact is anticipated from the construction of the Project.

3.7.3 Key potential ecological impacts associated with the operation include the potential bird collision along the re-provided noise barrier which is considered of minor potential impact. It will be mitigated by adopting bird friendly design such as using falcon sticker, tinted materials for the re-provided noise barriers, in spite of minor setback for construction of the elevated LFRSR-SB & LFRSR-NB. Thus, no ecological impacts are anticipated to arise from the operational phase after implementing the suggested mitigation measure.

3.8 LANDSCAPE AND VISUAL

3.8.1 The landscape and visual impact assessment associated with the construction and operation of the Project has been conducted in accordance with the requirements of Annex 10 and Annex 18 of EIAO-TM, EIAO Guidance Note No. 8/2010, as well as the requirements set out under Clause 3.4.10 and Appendix H of the Study Brief.

3.8.2 Potential landscape and visual impacts associated the Project during the construction and operation phases would primarily resulted from the interruption of existing roadside, engineered slope (vegetated), hillside, sitting-out area and public housing estate landscapes. These impacts have been minimized through minimization of works areas, and incorporation of sensitive and aesthetically pleasing design of aboveground structures and appropriate landscape and visual treatments for the project.

Landscape Impacts

3.8.3 The assessment area includes all areas within a 100m distance from the Project site boundary, within which 22 Landscape Resources (LRs) and 5 Landscape Character Areas (LCAs) are identified.

3.8.4 A total of 2,658 nos trees were recorded in the broad brush tree survey. In addition, a total of 1,698 nos. of trees were individually assessed and approximately 11 nos. of tree in two tree groups were recorded (i.e. total of 1,709 nos of trees). There is no Old and Valuable Trees (OVT) in accordance with DEVB TC(W) No. 5/2020 identified within the Project site boundary.

3.8.5 All 2,658 nos. tree recorded in broad brush tree survey would be proposed for retention. For the individually assessed and tree group survey, a total of 609 nos. of trees are proposed for retention in situ. A total of 23 nos. of trees are proposed for transplantation. A total of 1,077 nos. of surveyed trees, including 89 nos. *Leucaena leucocephala*, are proposed to be removed. *Leucaena leucocephala* is identified as an undesirable species with aggressive growth characteristics which prevent natural succession of indigenous species and so is not controlled by the same preservation requirements as other more valuable tree species. As such this tree has been identified as weed species which should be removed as part of development projects where the opportunity exists and replaced with better quality amenity trees. A total of 988 nos. of trees should be compensated as a result of the proposed works.

3.8.6 To compensate the loss of trees and mitigate the loss of greenery, a total of 988 nos. trees would be proposed for compensation. The compensation ratio is 1:1. Shrubs and ground cover plants would be proposed for planting at suitable locations in addition to tree planting. It should be noted that the location and the number of trees for the tree transplanting and/or compensatory planting will be detailed and finalised in the Tree Preservation and Removal Proposal (TPRP), which is subject to the approval of relevant authorities.

3.8.7 The preliminary planting proposals for the proposed works utilise a combination of standard to heavy standard sized trees and whip trees within Project site boundary and at agreed offsite locations. The planting proposals also form part of compensatory planting proposals for the loss of landscape resources, which will be compensated with appropriate visual enhancement/ greening measures for the benefit of the future landscape within the Project site boundary and at agreed offsite locations.

Visual Impacts

3.8.8 Within the Visual Envelope of the Project, four major types of Visually Sensitive Receiver (VSR) were identified during construction and operation phases, namely Residential VSRs, Occupational VSRs, Recreational VSRs, Travelling VSRs.

3.8.9 Appropriate landscape and visual mitigation measures are proposed during construction phase, including preservation of existing vegetation, transplanting of affected trees, control of night-time lighting glare, good site practice and erection of decorative screen hoarding. During operation phase, including compensatory tree planting for loss of existing trees, provision of roadside planting, provision of aesthetic pleasing treatment on noise barriers and aesthetically pleasing design for carriageways and other highways structures – columns, retaining structures, cycle paths and carriageways shall be sensitively designed in the regard of form, tonal colour and texture in order to minimise any potential adverse landscape and visual impact and to coherent with the surrounding environment.

3.8.10 Regarding mitigated visual impact, it is predicted that there would be slight to moderate residual impact on most of the VSRs during construction, and would be insubstantial to moderate on day 1 of operation and be further reduced to insubstantial to moderate when the proposed tree planting becomes mature in year 10 of operation. The residual impact on several VSRs, such as occupants in Hong Chi Morninglight School Tuen Mun, Ju Ching Chu Secondary School (Tuen Mun), Yan Chi Hospital No.2 Secondary School and in Independent Commission Against Corruption (ICAC) Training Camp would maintain as moderate in year 10 of operation, while residual impact on residents in Lung Mun Oasis, Tsing Shan Tsuen, Church of Christ in China Hok Fuk Tong Primary School, and travellers along Lung Chak Road would maintain as slight in year 10 of operation. There would be insubstantial residual impact on other VSRs within the visual envelope during the construction and operation of the Project.

3.8.11 Overall, it is considered that the residual landscape and visual impacts of the project are acceptable with mitigation during the construction and operational phases.

3.9 CULTURAL HERITAGE

3.9.1 The potential cultural heritage impacts associated with the construction and operation of the Project has been assessed in accordance with the requirements of Annex 10 and Annex 19 of EIAO-TM as well as the requirements set out under Clause 3.4.11 and Appendix I of the Study Brief. The assessment area covers 150m from the boundary of the Project Site and the work areas of the Project.

3.9.2 No Site of Archaeological Interest has been identified within the assessment area. Therefore, no adverse archaeological impact due to the proposed development is anticipated. No mitigation measure is required.

3.9.3 No archaeological potential area has been identified in the proposed work areas of the Project. No archaeological survey is required. No archaeological impact is anticipated and thus no mitigation measure is required.

3.9.4 Based on desktop review supplemented by built heritage field survey, there is no declared or proposed monuments and government historic sites identified by AMO in the assessment area.

3.9.5 Two graded historic buildings and six built heritage items have been identified within the assessment area. Due to sufficient separation distance from the Project works areas, potential direct or indirect impact on the identified built heritage items and identified graded historic building (i.e. No.3 San Shek Wan North Road) is not anticipated. No mitigation measure is required for the built heritage items and the abovementioned graded historic building.

3.9.6 Special attention should be paid to avoid potential adverse physical impact arising from the proposed works to the identified graded historic building (i.e. Shing Miu) and seven other associated building structures including the Castle Peak Sam Shing Hui Village Office, Hau Shi Tong (孝思堂), Tai Sui Din (太歲殿), Office of Shing Miu, Fook Tak Tsz (福德祠), an Earth God Shrine and an Arch. Design proposal, method of works and choice of machinery should be targeted to minimize potential vibration impact to Shing Miu and the associated building structures. As a precautionary measure, it is recommended that during pre-construction phase of the Project and implemented by the works contractor, a baseline condition survey and baseline vibration impact assessment be conducted for Shing Miu and the associated building structures by a qualified building surveyor or qualified structural engineer to evaluate on the necessary construction monitoring and structural strengthening measures for AMO's consideration. During construction phase, in view of its proximity, it is also recommended that the Arch is physically fenced off from the works area to minimise potential physical disturbance of construction works towards the Arch.

3.9.7 As the operation of the Project involves no excavation works, no cultural heritage impact from the Project is anticipated during the operation phase. Thus, no mitigation measure is required during the operation phase.

4 ENVIRONMENTAL MONITORING AND AUDIT (EM&A)

4.1.1 The EIA study of the Project has evaluated impacts related to air quality, noise, water quality, waste management, land contamination, ecology, landscape and visual, as well as cultural heritage arising from the Project, and has demonstrated to comply with the *EIAO-TM* requirements with the implementation of recommended mitigation measures and good site practices. Actual impacts during the construction works will be monitored through a detailed EM&A programme involving regular environmental site inspections and audits to ensure that the recommended mitigation measures and good site practices are properly implemented and are effective. The EM&A requirements under construction and operation phases are specified and detailed in the EM&A Manual associated with the EIA Report. The EM&A Manual will provide management actions and supplemental mitigation measures to be employed should any impacts arise, thereby ensuring the environmental acceptability of the construction and operation of the Project.

5 CONCLUSION

5.1.1 The EIA study has critically assessed the overall acceptability of the environmental impacts likely to arise as a result of the construction and operation of the Project in accordance with the Study Brief, EIAO-TM and other relevant guidelines and criteria. It has demonstrated the acceptability of any residual impacts from the Project and the protection of the population and environmentally sensitive resources.

5.1.2 The EIA study concluded that, with the implementation of the recommended mitigation measures, the Project would be environmentally acceptable and in compliance with the relevant assessment standards/criteria of the Study Brief and the *EIAO-TM*. The summary of the environmental impacts arising from the Project is presented in **Table 5.1**.

5.1.3 Where appropriate, EM&A mechanisms have been recommended to verify the accuracy of the EIA predictions to ensure the effectiveness of the recommended mitigation measures. The schedule of implementation of the proposed mitigation measures has been recommended and provided in the EM&A Manual.

Table 5.1 Summary of Environmental Impacts

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Air Quality Impact					
Construction Phase					
Representative ASRs within 500m from the boundary of the Project Site	The potential sources of air quality impact associated with the construction works include dust generated from construction sites.	• Annexes 4 and 12 of the EIAO-TM	Not Applicable	Appropriate dust control measures stipulated in the *Air Pollution Control (Construction Dust) Regulation* and good site practices will be incorporated into the Contract Specifications and implemented throughout the construction phase. Regular dust monitoring (also incorporated into the Contract Specifications) will be conducted to ensure the relevant legal requirements and standards are complied with during construction phase of the Project.	No adverse residual impact is anticipated.
Operation Phase					
Representative ASRs (including existing and planned) within 500m from the boundary of the Project Site	Predicted cumulative air pollutant concentrations (NO_2, RSP, FSP) at ASRs with Project operation comply with the prevailing AQOs.	• Annexes 4 and 12 of the EIAO-TM • Prevailing AQOs	N/A	No adverse air quality impact is anticipated during the operation phase of the Project, thus mitigation measure is deemed not necessary.	No adverse residual impact is anticipated.
Noise Impact					
Construction Phase					
Representative NSRs within 300m from the boundary of the Project Site	71 to 91dB(A)	• Annexes 5 and 13 of the EIAO-TM	0 to 16dB(A)	Implementation of recommended noise mitigation measures including: • Quality PME prescribed in EPD's Quality Powered Mechanical Equipment (QPME) database.	No adverse residual impact is anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		• $Leq_{(30\text{-}min)}$ 75dB(A) at 1m from the façade of residential dwellings • $Leq_{(30\text{-}min)}$ 70dB(A) at 1m from the façade of educational institutions which rely on an openable window for ventilation ($Leq_{(30\text{-}min)}$ 65dB(A) during examinations).		• Temporary movable noise barriers, noise enclosure and noise insulation fabric for PME. • Scheduling of construction activities. • Liaise with the school's management for the schedule of construction works to avoid carrying out noisy construction activities during the examination period.	
Operation Phase					
Representative NSRs (including existing and planned) within 300m from the boundary of the Project Site	• Predicted overall noise levels: 54 to 77dB(A) • Predicted noise levels of the Project roads: 27 to 69dB(A) • Maximum Contribution from Project roads: 0 to 1.3dB(A)	• Annexes 5 and 13 of the EIAO-TM • $L_{10(1\text{-}hour)}$ 70dB(A) at 1m from the façade of residential dwellings. • 65 dB(A) at 1m from the external façades of schools, places of public worship, courts of law and places where unaided voice communication is required. • 55dB(A) at 1m from the external façades of hospitals and clinics.	• Exceedance of the noise criteria by up to 12dB(A). • The exceedances are dominantly contributed by the existing roads at majority of representative NSRs, while at some other representative NSRs, the exceedances are dominantly contributed by Project Roads.	• LNRS of about 470m and 670m in length along the proposed LFRSR NB and LFRSR SB, respectively.	No adverse residual impact is anticipated.
Water Quality Impact					
Construction Phase					

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Representative Water Sensitive Receivers within 500m from the boundary of the Project Site.	The potential sources of water quality impact associated with the construction works include: • Wastewater from general construction activities; • Construction site run-off; • Sewage from the construction workforce; and • Accidental spillage of chemicals	• Annexes 6 and 14 of the EIAO-TM • Water Quality Objectives for the North Western Water Control Zone (WCZ) • Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) • Practice Note for Professional Persons (ProPECC) PN1/94	Not Applicable	• Mitigation measures and good site practices in ProPECC PN 1/94 "*Construction Site Drainage*". • Provision of interim treatment facilities, such as chemical toilets, for the construction workforce.	No adverse residual impact is anticipated.
Operation Phase					
Representative Water Sensitive Receivers within 500m from the boundary of the Project Site.	Potential water quality impacts associated with the operation phase include surface run-off from new roads.	• Annexes 6 and 14 of the EIAO-TM • Water Quality Objectives for the North Western Water Control Zone (WCZ) • Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) • Practice Note for Professional Persons (ProPECC) PN5/93	Not Applicable	•Adequate design in silt trap for the new road drainage which takes into account the guidelines in ProPECC PN5/93. •Best Storm Water Management Practices and Storm Water Pollution Control Plan to reduce non-point source pollution.	No adverse residual impact is anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		• Environmental, Transport and Works Bureau (ETWB) Technical Circular (Works) No.5/2005			
Waste Management Implications					
Construction Phase					
C&D materials, chemical wastes and general refuse	• Around 4,775m^3 of non-inert C&D materials and 48,167m^3 of inert C&D materials will be generated from different construction works of the Project, including site clearance, minor slope and excavation works, as well as piling and superstructure works. • A small quantity of chemical waste in the order of a few hundred litres per month. • Around 260kg per day of general refuse will be generated from construction works and on-site staff and workers.	• Annexes 7 and 15 of the EIAO-TM • Waste Disposal Ordinance (Cap. 354) • Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C); • Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N) • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • Public Health and Municipal Services Ordinance – Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK)	Not Applicable	• Implementation of good site practices, waste reduction measures, Waste Management Plan (WMP) and proper storage, collection and transport of waste.	No adverse residual impact is anticipated.

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Operation Phase					
Not Applicable	It is expected that no waste will be generated during the operation phase of the Project.	Not Applicable	Not Applicable	No mitigation measure is provided as the Project would not cause adverse impacts.	No adverse residual impact is anticipated.
Land Contamination					
Onsite construction workers and future occupants	Adverse land contamination impact arising from the Project is not anticipated.	• Annex 19 of the EIAO-TM • Guidance Note for Contaminated Land Assessment and Remediation (EPD, 2007) • Practice Guide for Investigation and Remediation of Contaminated Land (EPD, 2011) • Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management (EPD, 2007)	Not Applicable	As no adverse land contamination impact arising from the Project is anticipated, no mitigation measures were considered necessary.	No adverse residual impact is anticipated.
Ecology					
Construction Phase					
Representative ecological Sensitive receivers within	• Temporary habitat loss of about 0.85 of plantation that is	Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) Annexes 8 and 16	Not Applicable	• Compensatory planting • Reinstatement of plantation • Good site practice	Permanent loss of 1.1 ha of plantation and 0.08 ha of mixed woodland. The permanent loss of mixed

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
500m from the boundary of the Project Site	considered of insignificant impact. • Permanent habitat loss of 1.54 ha developed area and 1.1 ha of plantation that are considered of insignificant potential impact; permanent loss of 0.08 ha mixed woodland which is considered of minor impact. • Other minor potential ecological impacts.				woodland will be mitigated by compensatory planting. With the recommended mitigation measures in place, the impact will be minimized to very low level and acceptable.
Operation Phase					
Representative ecological Sensitive receivers within 500m from the boundary of the Project Site	• Potential bird collision along the re-provided noise barriers which is considered as minor impact. • Other minor potential ecological impacts	Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) Annexes 8 and 16	Not Applicable	• Adoptation of bird friendly design for the re-provided noise barriers	With the recommended mitigation measures in place, the impact will be minimized to very low level and acceptable.
Landscape and Visual					
Construction Phase					

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Landscape Resources (LRs) & Landscape Character Areas (LCAs)	• Substantial landscape impact on LR2.1, LR2.2, LR2.3 & LCA1 • Moderate landscape Impact on LR3.1, LCA4 & LCA5 • Slight landscape impact on LR4.1 & LCA3 • Insubstantial landscape impact on other LRs & LCAs	• Annexes 10 and 18 of the EIAO-TM • EIAO-GN 8/2010 (Preparation of LVIA under the Environmental Impact Assessment Ordinance)	Not Applicable	• Preservation of Existing Vegetation • Transplanting of Affected Trees • Control of Night-time Lighting Glare • Good Site Practice • Erection of Decorative Screen Hoarding	• Moderate landscape Impact on LR2.1, LR2.2, LR2.3 & LCA1 • Slight landscape impact on LR3.1, LR4.1, LCA3, LCA4 & LCA5 • Insubstantial landscape impact on other LRs & LCAs
Visually Sensitive Receivers (VSRs)	• Moderate visual Impact on VSR1, VSR2, VSR3, VSR4, VSR5, VSR6, VSR7, VSR8, VSR9, VSR10, VSR11, VSR12, VSR13, VSR14, VSR15, VSR16, VSR17, VSR18, VSR19, VSR20, VSR24 • Slight visual impact on VSR21, VSR22, VSR23	• Annexes 10 and 18 of the EIAO-TM • EIAO-GN 8/2010 (Preparation of LVIA under the Environmental Impact Assessment Ordinance)	• Not Applicable	• Preservation of Existing Vegetation • Transplanting of Affected Trees • Control of Night-time Lighting Glare • Good Site Practice • Erection of Decorative Screen Hoarding	• Moderate visual Impact on VSR1, VSR2, VSR3, VSR4, VSR5, VSR6, VSR7, VSR8, VSR9, VSR10, VSR11, VSR12, VSR13, VSR14, VSR15, VSR16, VSR17, VSR24 • Slight visual impact on VSR18, VSR19, VSR20, VSR21, VSR22, VSR23
Operation Phase					
Landscape Resources (LRs) & Landscape	• Substantial landscape impact on LR2.1, LR2.2, LR2.3 & LCA1	• Annexes 10 and 18 of the EIAO-TM • EIAO-GN 8/2010 (Preparation of LVIA under	• Not Applicable	• Compensatory Tree Planting (A total of 1,077 nos. of surveyed trees, including 89 nos. *Leucaena leucocephala*, are proposed to be removed. 988 nos. of	• Slight residual impact during day 1 of operation and remain slight residual

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Character Areas (LCAs)	• Moderate landscape impact on LR3.1, LCA4 & LCA5 • Slight landscape impact on LR4.1 & LCA3 • Insubstantial landscape impact on other LRs & LCAs	the Environmental Impact Assessment Ordinance)		trees should be compensated as a result of the proposed works.) • Roadside Planting • Provision of Aesthetic Pleasing Treatment on Noise Barriers • Aesthetically pleasing design for carriageways and other highways structures	impact during year 10 of operation on LR2.3 • Slight residual impact during day 1 of operation and insubstantial residual impact during year 10 of operation on LR2.1, LR2.2, LR3.1, LCA1, LCA4 & LCA5 • Insubstantial residual impact during day 1 and year 10 of operation on other LRs & LCAs
Visually Sensitive Receivers (VSRs)	• Moderate visual impact on VSR1, VSR2, VSR3, VSR4, VSR5, VSR6, VSR7, VSR8, VSR9, VSR10, VSR11, VSR18, VSR19, VSR20 • Slight visual impact on VSR12, VSR13, VSR14, VSR15, VSR16, VSR17, VSR21, VSR22, VSR23, VSR24	• Annexes 10 and 18 of the EIAO-TM • EIAO-GN 8/2010 (Preparation of LVIA under the Environmental Impact Assessment Ordinance)	• Not Applicable	• Compensatory Tree Planting (A total of 1,077 nos. of surveyed trees, including 89 nos. Leucaena leucocephala, are proposed to be removed. 988 nos. of trees should be compensated as a result of the proposed works.) • Roadside Planting • Provision of Aesthetic Pleasing Treatment on Noise Barriers • Aesthetically pleasing design for carriageways and other highways structures	• Moderate residual impact during day 1 of operation and during year 10 of operation on VSR6, VSR7, VSR8, VSR9 • Slight residual impact during day 1 of operation and during year 10 of operation on VSR2, VSR4, VSR5, VSR15 • Slight residual impact during day 1 of operation and insubstantial residual impact during year 10 of operation on VSR1, VSR3, VSR10, VSR11

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
					• Insubstantial residual visual impact during day 1 and year 10 of operation on other VSRs.
Cultural Heritage					
Construction Phase					
Cultural heritage resources	The proposed works areas of the Project are located in an area with no archaeological potential. No archaeological survey is required. The potential impact on archaeological resources is not anticipated.	• Annexes 10 and 19 of the EIAO-TM • Antiquities and Monuments Ordinance • Hong Kong Planning Standards and Guidelines (HKPSG) • Guidelines for Cultural Heritage Impact Assessment	Not Applicable	• A baseline condition survey and baseline vibration impact assessment are recommended to be conducted for Shing Miu and seven other associated building structures including the Castle Peak Sam Shing Hui Village Office, Hau Shi Tong, Tai Sui Din, Office of Shing Miu, Fook Tak Tsz, an Earth God Shrine and an Arch by a qualified building surveyor or qualified structural engineer during pre-construction phase of the Project to evaluate on the necessary construction monitoring and structural strengthening measures for AMO's consideration. • During the construction phase of the Project adjacent to the Arch, it shall be physically fenced off from the works area to minimise potential physical disturbance of construction works towards the Arch.	With the implementation of the recommended mitigation measures, no adverse residual impact is anticipated.
Operation Phase					
Cultural heritage resources	No impact would be anticipated during the operation phase.	• Annexes 10 and 19 of the EIAO-TM	Not Applicable	No mitigation measure would be required.	Not Applicable

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures/ Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
		• Antiquities and Monuments Ordinance • Hong Kong Planning Standards and Guidelines (HKPSG) • Guidelines for Cultural Heritage Impact Assessment			

FIGURE 2.2 - 2.3

FIGURE 2.4

LEGEND :

SITE LIMIT

DEVELOPED SCHEME

Rev	Description	By	Date

Consultant

wsp

Project title

TRAFFIC IMPROVEMENT SCHEME IN TUEN MUN - WIDENING AND ADDITION OF SLIP ROADS AT LUNG FU ROAD/ TUEN MUN ROAD/ WONG CHU ROAD/ HOI WING ROAD

Drawing title

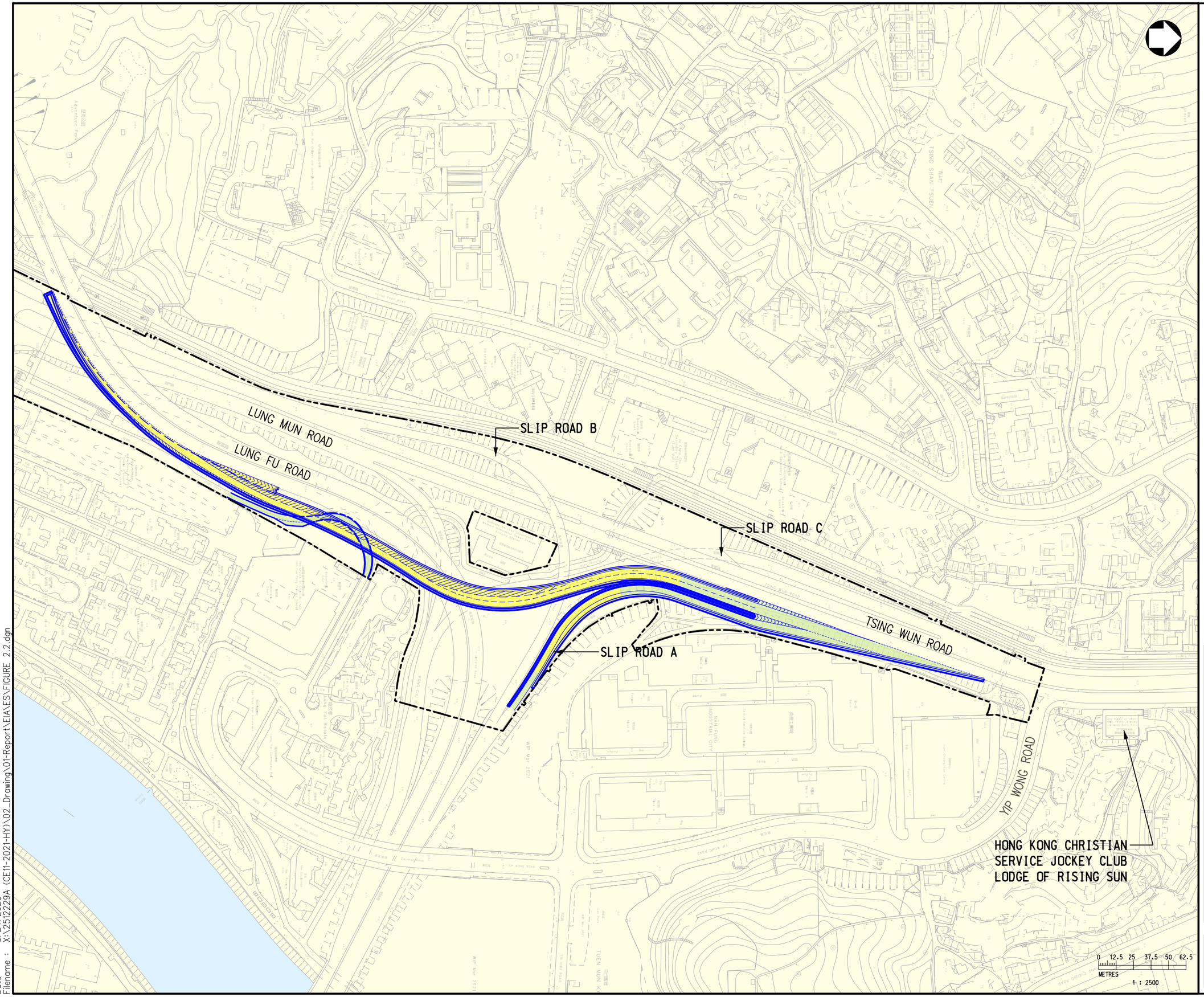
LOCATION PLAN OF THE PROJECT

Drawing no.			Rev.
FIGURE 2.1			-
Drawn: CAD	Date: 05/22	Checked: -	Approved: -
Scale: AS SHOWN (A3)		Status: REPORT	

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

0 40 80 120 160 200
METRES
1 : 8000

Date : 4/17/2023
Filename : C:\Users\yiu.ken\ACCDocs\WSP Asia projects (AMER)\CE11_2021 HY\Project Files\1_WIP\1.1.2 CAD\1.1.2.1 SHEET\01 REPORT\EIA\ES\FIGURE 2.1.dgn



LEGEND :

- SITE LIMIT
- DEVELOPED SCHEME (ELEVATED)
- DEVELOPED SCHEME (AT-GRADE)

Rev	Description	By	Date

Consultant

wsp

Project title

TRAFFIC IMPROVEMENT SCHEME IN TUEN MUN - WIDENING AND ADDITION OF SLIP ROADS AT LUNG FU ROAD/ TUEN MUN ROAD/ WONG CHU ROAD/ HOI WING ROAD

Drawing title

LAYOUT OF LUNG FU ROAD SLIP ROAD - SOUTHBOUND

Drawing no.	Rev.
FIGURE 2.2	-

Drawn	Date	Checked	Approved
CADD	05/22	-	-

Scale	Status
AS SHOWN (A3)	REPORT

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Date : 3/24/2023
Filename : X:\2512229A (CE11-2021-HY)\02_Drawing\01-Report\EIA\ES\FIGURE 2.2.dgn

LRT – LUNG MUN STATION

LUNG MUN ROAD

LUNG FU ROAD

SLIP ROAD D

SLIP ROAD B

SLIP ROAD C

SLIP ROAD FROM WCR TO TWR (N/B)

LRT – TSING SHAN TSUEN STATION

TSING WUN ROAD

TSING SHAN TSUEN

NAN FUNG INDUSTRIAL CITY

0 12.5 25 37.5 50 62.5
METRES

1 : 2500

LEGEND :

SITE LIMIT

DEVELOPED SCHEME (ELEVATED)

DEVELOPED SCHEME (AT-GRADE)

Rev	Description	By	Date

Consultant

wsp

Project title

TRAFFIC IMPROVEMENT SCHEME IN TUEN MUN – WIDENING AND ADDITION OF SLIP ROADS AT LUNG FU ROAD/ TUEN MUN ROAD/ WONG CHU ROAD/ HOI WING ROAD

Drawing title

LAYOUT OF LUNG FU ROAD SLIP ROAD – NORTHBOUND

Drawing no.			Rev.
FIGURE 2.3			–
Drawn	Date	Checked	Approved
CADD	05/22	–	–
Scale		Status	
AS SHOWN (A3)		REPORT	

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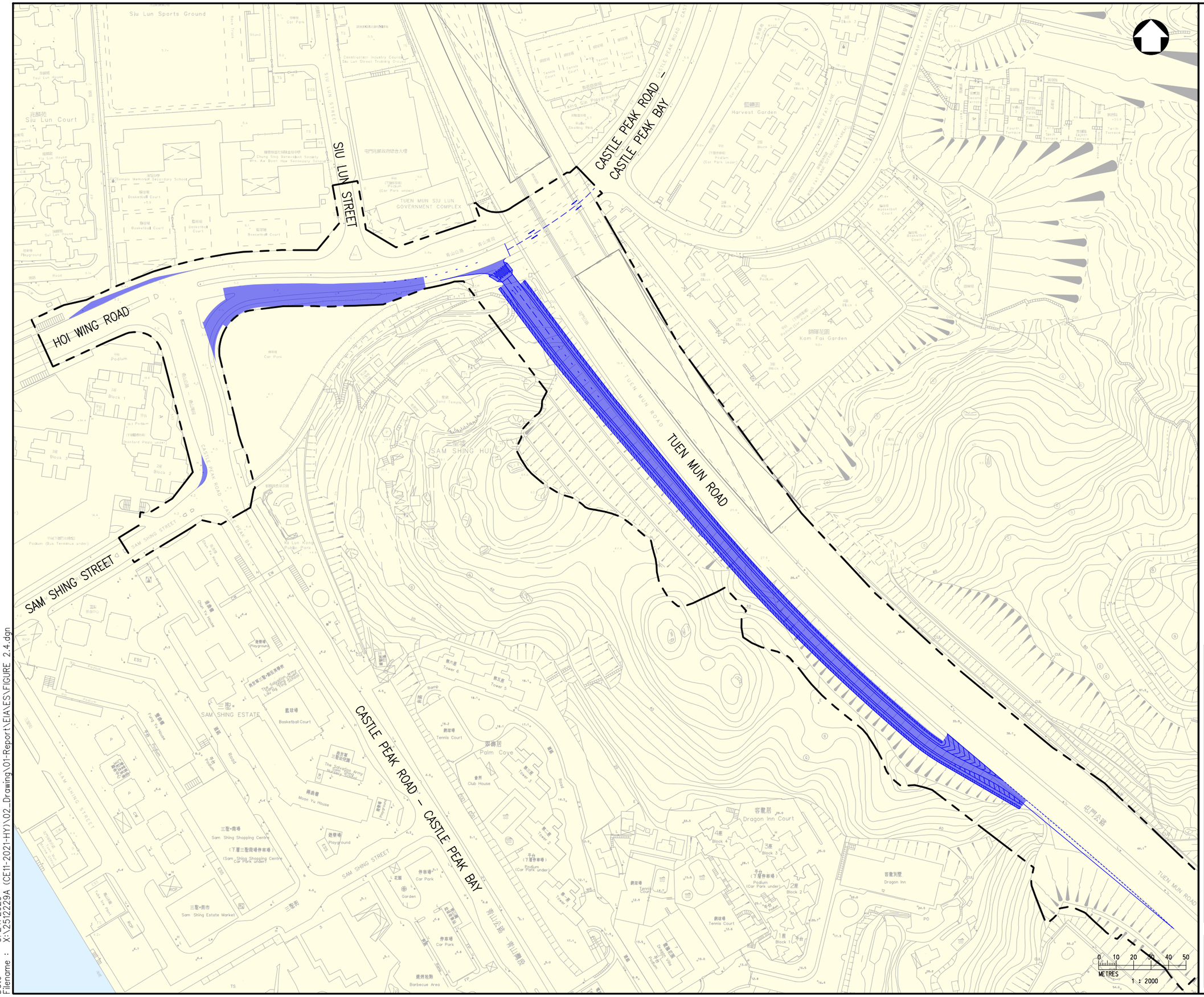
Date : 3/24/2023
Filename : X:\2512229A (CE11-2021-HY)\02_Drawing\01-Report\EIA\ES\FIGURE 2.3.dgn



LEGEND :

- SITE LIMIT
- DEVELOPED SCHEME

Rev	Description	By	Date

Consultant

wsp

Project title

TRAFFIC IMPROVEMENT SCHEME IN TUEN MUN – WIDENING AND ADDITION OF SLIP ROADS AT LUNG FU ROAD/ TUEN MUN ROAD/ WONG CHU ROAD/ HOI WING ROAD

Drawing title

LAYOUT OF HOI WING ROAD SLIP ROAD

Drawing no.			Rev.
FIGURE 2.4			–
Drawn	Date	Checked	Approved
CADD	05/22	–	–
Scale		Status	
AS SHOWN (A3)		REPORT	

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Date : 3/24/2023
Filename : X:\2512229A (CE11-2021-HY)\02_Drawing\01-Report\EIA\ES\FIGURE 2.4.dgn