

Cycle Track between Tsuen Wan and Tuen Mun (Tuen Mun to So Kwun Wat)

EIA Executive Summary

Civil Engineering and Development Department

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ATKINS

Member of the SNC-Lavalin Group

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1. Introduction

1.1. Background

- 1.1.1. This Project is known as “Cycle Track between Tsuen Wan and Tuen Mun (Tuen Mun to So Kwun Wat)” (the Project).
- 1.1.2. The Project involves construction of a cycle track from Tuen Mun to So Kwun Wat, which forms part of the cycle track backbone section from Tsuen Wan to Tuen Mun in the existing New Territories cycle track network.
- 1.1.3. The Project comprises construction and operation of a new cycle track at-grade or on viaduct. Construction of the foundation of the viaduct section (via bored piling works) will take place less than 500m from the nearest boundary of existing bathing beaches. The Project is therefore a Designated Project by virtue of Item C.12(a)(iii), Part 1, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO), which specifies “*dredging operation less than 500m from the nearest boundary of an existing bathing beach*”.
- 1.1.4. An Environmental Impact Assessment (EIA) has been undertaken in accordance with EIA Study Brief (No: ESB-295/2016) to provide information on the nature and extent of environmental impacts arising from the construction and operation of the Project and to contribute to decisions on the overall environmental acceptability of the Project.
- 1.1.5. The location and proposed layout of the Project are shown in **Figure 1.1**.

2. Project Description

2.1. Need for the Project

- 2.1.1. This Project involves construction of a cycle track from Tuen Mun to So Kwun Wat, which is part of the cycle track backbone section from Tsuen Wan to Tuen Mun of the existing New Territories cycle track network. With the Project in place, more recreational opportunities would be created for the public to enjoy.

2.2. Project Scope

- 2.2.1. The scope of the Project comprises the following:
 - i. Construction of new cycle tracks of about 3.6 km long from Hin Fat Lane and Hoi Wing Road at Tuen Mun to Kwun Tsing Road at So Kwun Wat with associated footpaths
 - ii. Construction of a marine cycle bridge with footpath of about 200 m long between Cafeteria Old Beach and Kadoorie Beach.
 - iii. Provision of cycle parking areas near Hin Fat Lane, Cafeteria Old Beach and Kwun Tsing Road.

Comparison of the proposed layout with the original layout indicated in the EIA Study Brief is shown in **Figure 2.1**.

2.3. Scenarios With and Without the Project

Without Project

- 2.3.1. Without the Project, it is not possible to connect the cycle tracks in the western and eastern parts of the New Territories.

With Project

- 2.3.2. With the Project, a linkage will be created between the existing cycle track network in the western part of the New Territories and So Kwun Wat. Cyclists will be able to travel and cycle safely on the new cycle track. The Project can further enhance the recreational value of the cycle tracks for public enjoyment, promote safe recreational riding, and develop a comprehensive cycle track network in the New Territories to foster a bicycle-friendly environment.

2.4. Environmental Benefits and Achievements of the Project

- 2.4.1. By providing such infrastructure conducive to cycling, the proposed cycle track will promote bicycle usage for recreation, thereby fostering a more bicycle-friendly environment.

- 2.4.2. Furthermore, the major environmental benefits of the preferred cycle track alignment are listed below according to the hierarchy of “Avoid, Minimize and Mitigate” for environmental protection.

- Avoidance of tree felling of species of conservation importance during construction phase;
- Avoidance of three marine viaduct sections and impact to marine quality during construction phase;
- Avoidance of open sea dredging during construction phase;
- Minimization of impact to water quality during construction phase;
- Minimization of impact to marine ecology and visual impacts during construction and operational phases;
- Minimization of wastewater effluent discharge during construction and operational phases;
- Minimize impact to air quality and noise by avoiding excessive civil construction works during construction phase:
- Minimization of the footprint of the project; and
- Mitigation measures implementation.

- 2.4.3. Referring to **Figure 2.1**, the summary of environmental benefits and achievements of the Project is listed below.

Environmental Benefits and Achievements
<p>Avoidance of tree felling of species of conservation importance during construction phase: The cycle track alignment has been designed to retain all tree species of conservation importance along the route.</p>
<p>Avoidance of three marine viaduct sections and impact to marine water quality during construction phase: Three marine viaduct sections have been avoided, including (i) two viaduct sections from Kadoorie Beach to Castle Peak Beach via Kadoorie Pier and (ii) one viaduct section connecting between Castle Peach beach and Sam Shing Street area. This will avoid impact to marine water quality during construction.</p>
<p>Avoidance of open sea dredging during construction phase: Open sea dredging is not needed to construct the only marine viaduct section of the alignment due to the use of pre-bored H-pile foundation type piles, thereby minimizing sediment release.</p>
<p>Minimization of impact to water quality during construction phase: The use of precast pile caps, pre-bored H-pile foundation, controlled rate of pile construction and cage type silt curtains would minimize sediment generation and impact to water quality during construction of the marine viaduct.</p>

Environmental Benefits and Achievements

Minimization of impact to marine ecology and visual impacts during construction and operational phases:

The avoidance of the three marine viaduct sections could minimize the impacts to marine ecology and visual impacts brought to the nearby visually sensitive receivers.

Minimization of wastewater effluent discharge during construction and operational phases:

Sewage effluent from onsite workforce during construction and visitors to the cycle track during operational phase will be properly conveyed into designated sewage holding tanks and the existing sewerage system respectively.

Minimize impact to air quality and noise by avoiding excessive civil construction works during construction phase:

The cycle track alignment has been designed to avoid excessive civil construction works along the route during construction phase, in order to reduce impact to nearby air and noise sensitive receivers.

Minimize the footprint of the Project: The cycle track alignment has been designed to minimize the overall Project footprint.

Mitigation measures implementation: The proper implementation of mitigation measures, as discussed below, will further ensure that no adverse environmental impact would result from the construction and operation of the Project.

2.5. Construction of the Project

- 2.5.1. The construction is scheduled to commence in the 1st quarter of 2023 and will be completed by the 3rd quarter of 2026 tentatively.

3. Key Findings of EIA

3.1. Air Quality

- 3.1.1. Fugitive dust emissions are the major sources of air pollution during the construction phase of the Project. Through proper implementation of dust control measures as required under the *Air Pollution Control (Construction Dust) Regulation*, construction dust can be controlled at source to acceptable levels. In view of the small scale of the works, the air quality impact is anticipated to be insignificant.
- 3.1.2. During the operational phase, the Project itself is not a source of air pollution and the cycle track is not considered as air sensitive receiver. Thus no air quality impact is anticipated and no mitigation measures are required.
- 3.1.3. Whilst no specific construction dust monitoring is recommended, weekly environmental site audits shall be undertaken during the construction stage to ensure proper implementation of air quality control measures.
- 3.1.4. Since no air quality impact is anticipated during the operational phase of the Project, monitoring and audit are not required for the operational phase of the Project.

3.2. Noise

- 3.2.1. The use of powered mechanical equipment (PME) for the construction activities will be the primary noise source during the construction phase of the cycle track. Control measures, including the combined use of quieter plant, temporary noise barriers and enclosures, quieter construction method as well as careful works management, will be implemented to mitigate construction noise impact due to the works. With the mitigation measures in place, the noise criteria set out in the EIAO-TM will be complied with.
- 3.2.2. Monitoring of the construction noise impact is recommended to ensure proper implementation of the mitigation measures, and to minimize the noise level as far as practicable.

- 3.2.3. No operational noise impact is expected to arise from the Project. No noise mitigation measures are required.

3.3. Water Quality

- 3.3.1. Water quality impacts from the land-based construction works, including construction site runoff, sewage effluent from on-site workforce, general construction activities and accidental chemical spillage, can be controlled to acceptable levels by implementing the recommended mitigation measures. No adverse water quality impacts are anticipated.
- 3.3.2. Water quality impacts would be associated with the marine-based construction works for the viaduct section including release of suspended solids as well as depletion of dissolved oxygen. With adoption of pre-bored H-pile foundation, open sea marine dredging will be avoided. With the recommended mitigation measures including use of silt curtains in place, no adverse water quality impacts are anticipated.
- 3.3.3. Monitoring and auditing for marine water quality impacts during construction would be required to ensure that the released suspended solid concentrations from the piling activities at marine viaduct section would not adversely affect the water sensitive receivers. Regular site audit should also be carried out to ensure that the recommended mitigation measures are properly implemented.
- 3.3.4. Runoff from the cycle track will be conveyed into designated drainage systems during the operational phase. Silt trap/interceptor would be provided and maintained in the designated drainage systems to minimize water quality impact arising from surface runoff. The wastewater (i.e., sewage effluent from visitors) arising will be properly conveyed into existing sewerage system. The administrative measures such as regular cleaning of cycle track surface, maintenance of silt trap, etc. would be in place.

3.4. Waste Management

- 3.4.1. Wastes generated by the construction activities include construction and demolition (C&D) materials, general refuse from the workforce and chemical waste generated from any maintenance of construction plant and equipment. Through proper on-site handling and storage (covered containers), reuse (of inert construction wastes) and off-site disposal (via approved waste collectors to approved waste facilities and/or disposal grounds), the generation, handling and disposal of these wastes are not expected to give rise to any adverse environmental impacts. No dredged marine sediment is anticipated from the Project. Provided that the waste management practices are strictly followed, no adverse impacts to the environment associated with waste generated by the construction phase of the Project are anticipated.
- 3.4.2. Good waste management practices have been recommended to prevent and minimize any adverse environmental impact during the operation of the Project. These include provision of litter bins along the route together with regular collection and disposal. No adverse waste management issues are expected to arise during the operational phase of the Project.

3.5. Land Contamination

- 3.5.1. Land contamination assessment has been carried out including a review of historical / current land uses, desktop review and the site inspection. Other relevant information has also been collected from related government departments. No potential land contamination issue is identified within the Project area. In addition, potentially contaminating activities or land uses under the Project are not anticipated.

3.6. Ecology & Fisheries

- 3.6.1. Potential impacts of the proposed cycle track on ecology and fisheries aspects within the Study Area have been addressed.
- 3.6.2. No site or habitat of conservation importance would be directly impacted.

- 3.6.3. As a result of land-based construction activities, up to 0.99 ha developed area, 0.11 ha of mixed woodland, 0.29 ha of plantation woodland and 0.1 km of man-made watercourse would be permanently lost due to the Project. Given the small areas and very low or low-to-moderate ecological value of the affected habitats, terrestrial ecological impact arising from the cycle track construction activities would be minor.
- 3.6.4. Regarding the terrestrial species of conservation importance, 3 plant species, 1 mammal species, 4 bird species, 1 dragonfly species and 1 butterfly species have been recorded from the ecological surveys. As the three plant species were planted in the plantation within the Project Site, and the fauna species are mobile species, significant impacts to these species are not expected.
- 3.6.5. The viaduct piling area will affect about 19 m² of the seabed. A dive survey has been conducted in the viaduct footprint area and found that there is only a low coverage of common corals scattered on bedrocks and translocation of these corals is not feasible. Given the commonness of the corals in Hong Kong, low coverage and poor conditions within the small affected area, mitigation measures are not required. As a precautionary approach, a coral survey would be conducted within the piling footprint prior to the commencement of piling works.
- 3.6.6. The project area is already highly disturbed. During the operational phase of the project, the indirect impacts due to human activities are expected to be insignificant.
- 3.6.7. Permanent fishing ground loss, which would occur during the operational phase due to the presence of bored piles (0.0019 ha), is considered insignificant. Potential fisheries impacts due to construction and operation of the Project are considered minor and insignificant.
- 3.6.8. Given the adoption of water quality mitigation measures, including but not limited to the deployment of cage type silt curtains for reduction of sediment release to marine habitat from the bored pile installation as stated in the water quality chapter, no other fisheries-specific mitigation measures and monitoring programme are required.
- 3.6.9. The marine ecological impact induced by the Project is evaluated as minor to insignificant. However, a study would be conducted prior to commencement of the marine works for the marine viaduct section to explore if feasible and practical ecological enhancement measures could be adopted as trial.

3.7. Landscape & Visual

- 3.7.1. The proposed cycle track would cause some changes in the landscape and visual amenity of the Project Site, although a large part of the route is within the highway boundary or within waterfront open space areas, which are compatible planning designations for the proposed cycle track.
- 3.7.2. In terms of landscape and visual impacts, the main effects would primarily be resulted from the interruption of existing roadside and waterfront landscapes. The proposed works will occupy a small part of roadside or waterfront area and the majority of works would only involve modification of existing roads and tracks, footpaths, hard stands and planting areas. Much of the works area would be reinstated to its original status or changed to new amenity area on completion of the construction phase. It is evident that the works would not cause permanent impact to the majority of landscape resources, and residual impacts would be small and localised. In terms of visual context and visual amenity, the proposed works would only result in a relatively low level of disturbance to most VSRs and the works would form only a small component in each identified Landscape Character Area within the Study Area.
- 3.7.3. The preliminary planting proposals for the proposed works utilise a combination of standard to heavy standard sized stock in general roadside planting areas and heavy standard sized stock for feature trees at selected locations along the track. The planting proposals also form part of compensatory planting proposals for the loss of landscape resources, such as existing trees, which will be compensated with appropriate visual enhancement/ greening measures for the benefit of the future landscape within the Study Area.

- 3.7.4. Elegant design of the bridge viaduct structures and careful alignment to respect the natural outline of the coast will be adopted for the Project, whilst the use of decorative railings and parapets can also help improve the appearance of these structures from certain coastal viewpoints. In addition, the use of attractive and coordinated street furniture and paving materials will also allow localised improvement to the roadside condition.
- 3.7.5. 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.

3.8. Cultural Heritage

- 3.8.1. During the construction phase, there are no potential direct and indirect impacts on Sites of Archaeological Interest and Graded Historic Buildings. For the non-graded built heritage items identified within the Project area, mitigation measures including condition survey, provision of buffer zone and public safe areas have been recommended as precautionary measures. As a precautionary measure, the project proponent should be reminded to inform AMO immediately when any antiquities or supposed antiquities are discovered in the course of works. During the operational stage, no adverse impacts are expected.
- 3.8.2. A Marine Archaeological Investigation has concluded that there are no underwater cultural heritage resources within the study area. Therefore, no impact to underwater cultural heritage resources will be induced.

4. Environmental Monitoring and Audit

4.1. EM&A Requirements

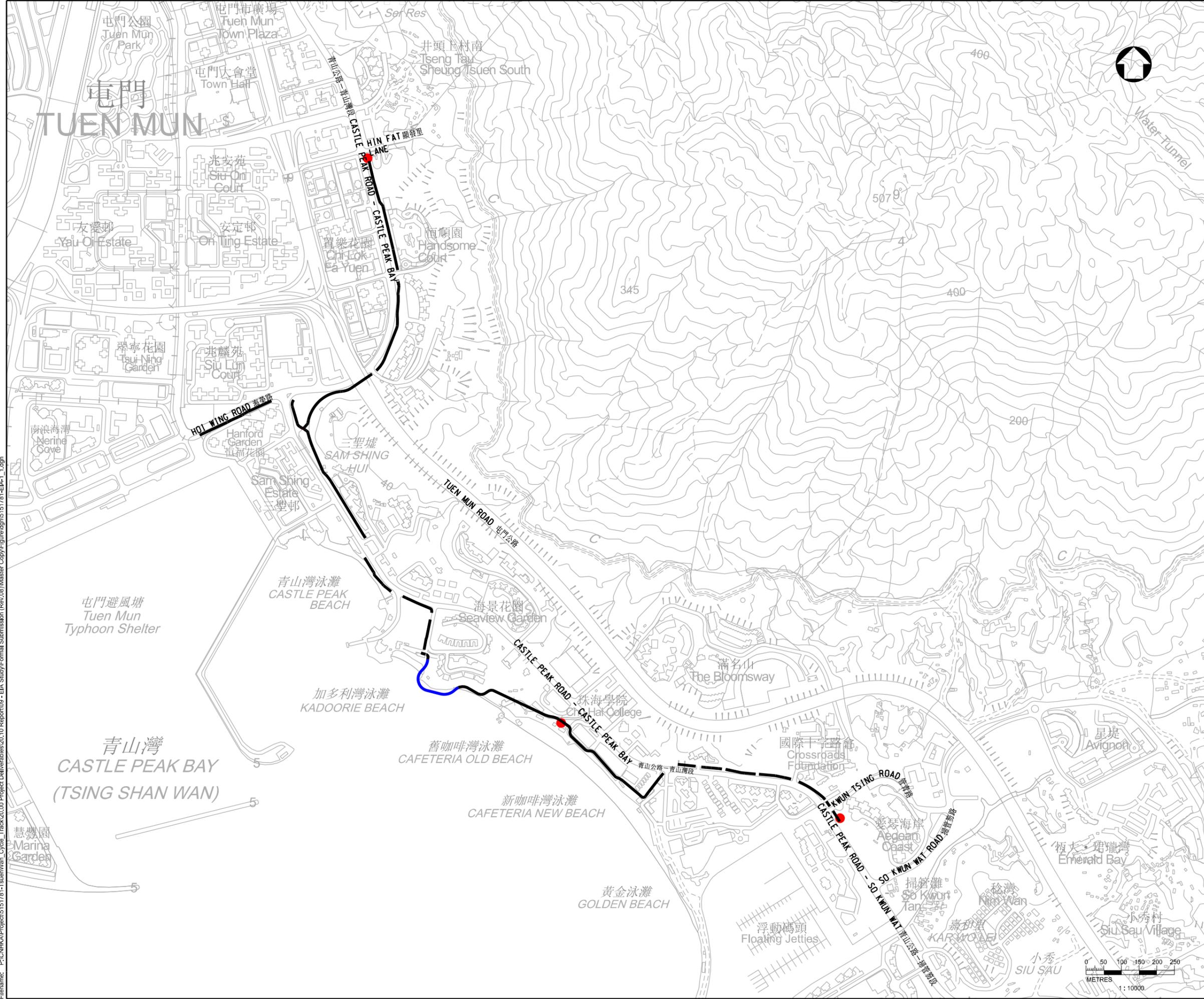
- 4.1.1. An environmental monitoring and audit programme will be implemented for the Project during the construction phase to ensure the effectiveness of the recommended mitigation measures and compliance with relevant statutory criteria. An Environmental Monitoring and Audit (EM&A) Manual and an Environmental Mitigation Implementation Schedule (EMIS) have been prepared, whilst Event and Action Plan for the potential environmental impacts has been formulated and stated in the EM&A Manual.

5. Overall Conclusion

5.1. Conclusion from EIA

- 5.1.1. The Project is to construct a cycle track from Tuen Mun to So Kwun Wat. It promotes safe recreational riding and develops a comprehensive cycle track network in the New Territories fostering a more bicycle-friendly environment.
- 5.1.2. The EIA has predicted that, after the adoption of appropriate mitigation measures, no unacceptable environmental impacts are envisaged as a result of the construction and operation of the Project and the Project would be in compliance with the applicable environmental legislation and standards. An environmental monitoring and audit programme has been recommended to monitor the implementation of the mitigation measures and to ensure compliance with relevant environmental standards.

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LEGEND: 圖例:

- 擬建單車徑 (地面) PROPOSED CYCLE TRACK (AT GRADE)
- 擬建單車徑 (高架路段) PROPOSED CYCLE TRACK (VIADUCT)
- 擬建單車泊車位 PROPOSED CYCLE PARKING AREA

Alignment subject to gazette under Cap. 370 Roads (Works, Use and Compensation) Ordinance
 走線會根據第370章《道路(工程、使用及補償)條例》刊憲

Rev.	Date	Description	By	Chkd	App'd
E	03/22	EIA SUBMISSION		EL	AS JY
D	12/21	EIA SUBMISSION		EL	AS JY
C	08/21	EIA SUBMISSION		EL	AS JY
B	05/21	EIA SUBMISSION		SK	RWKC DF
A	12/19	EIA SUBMISSION		SK	RWKC DF

Drawing Status: 詳細設計 DETAILED DESIGN

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Client: **CEDD** 土木工程拓展署
 Civil Engineering and Development Department
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 West Development Office

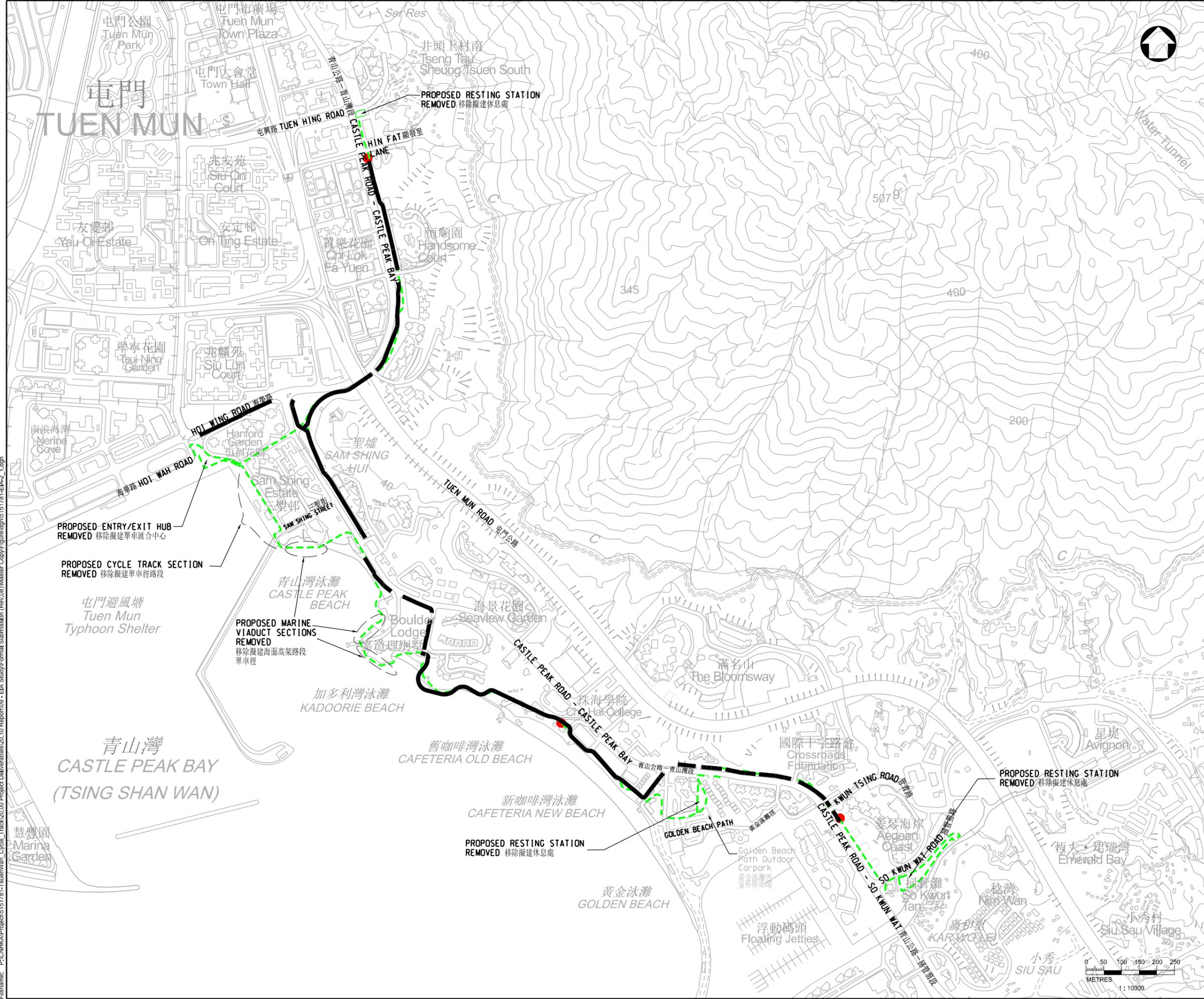
Project Title: 荃灣至屯門單車徑 (屯門至掃管笏)
 CYCLE TRACK BETWEEN TSUEN WAN AND TUEN MUN (TUEN MUN TO SO KWUN WAT)

Drawing Title: 工程位置
 PROJECT LOCATION

Scale	Designed	Drawn	Checked	Authorised
1:10000	SK	EL	AS	JY
Original Size	Date	Date	Date	Date
A3	MAR 2022	MAR 2022	MAR 2022	MAR 2022

Drawing Number: 圖 1.1
 FIGURE 1.1

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LEGEND: 圖例:

- 擬建地面單車徑及行人路
PROPOSED AT-GRADE CYCLE TRACK AND FOOTPATH
- 擬建高架路段單車徑及行人路
PROPOSED CYCLE TRACK AND FOOTPATH ON VIADUCT
- 環評研究概要內擬建的單車徑
PROPOSED CYCLE TRACK IN EIA STUDY BRIEF
- 擬建單車泊車位
PROPOSED CYCLE PARKING AREA

Rev.	Date	Description	By	Chkd	App'd
E	03/22	EIA SUBMISSION	RW	BT	WW
D	01/22	EIA SUBMISSION	AC	RWKC	DF
C	08/21	EIA SUBMISSION	EL	AS	JY
B	05/21	EIA SUBMISSION	SK	RWKC	DF
A	12/19	EIA SUBMISSION	SK	RWKC	DF

Drawing Status: **DETAILED DESIGN**

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Client: **CEDD** 土木工程拓展署
Civil Engineering and Development Department
西拓展處
West Development Office

Project Title: 荃灣至屯門單車徑 (屯門至掃管笏)
CYCLE TRACK BETWEEN TSUEN WAN AND TUEN MUN (TUEN MUN TO SO KWUN WAT)

Drawing Title: 工程項目路線的比較
COMPARISONS OF PROJECT ALIGNMENT

Scale	Designed	Drawn	Checked	Authorised
1: 10000	SK	RW	BT	WW
Original Size	Date	Date	Date	Date
A3	MAR 2022	MAR 2022	MAR 2022	MAR 2022
Drawing Number	Revision			
圖2.1	FIGURE 2.1			E