# Summary of Design Alternatives considered during the Feasibility Study

## Introduction

The Feasibility Study commissioned by Planning Department for the LT/HYW BCP project in 2007 examined a number of alternative options for the BCP and its connecting road alignment prior to putting forward the preferred alignment and layout that was adopted in the EIA Study Brief No. ESB-199/2008. The design alternatives considered have been summarised in the following sections.

## BCP Location Options

In the Hong Kong/Shenzhen Joint Study, recommendations were made for a new BCP in the area opposite to Shenzhen Liantang. Based on this recommendation, initial assessments were conducted in early 2007 to assess the site constraints in the Heung Yuen Wai and Ta Kwu Ling areas, given the design parameters set out for the BCP. The proposed site of the Shenzhen BCP at Liantang and the design parameters presented a number of constraints to the possible sites for the corresponding BCP in Hong Kong. On the Hong Kong side immediately adjacent to the proposed Liantang BCP, there are two village environs (Chuk Yuen and Tsung Yuen Ha), the Kong Yiu Channel, the border road, Lin Ma Hang Road, and one graded historic building (Macintosh Fort) at Pak Fu Shan. Other nearby features include the NENT landfill and permitted burial grounds. Based on the design requirements and site constraints, three initial options for locating the Hong Kong BCP were identified during the Feasibility Study (shown in **Figure 1**).

**BCP Option 1 – foothills of Pak Fu Shan**

This option involves locating the BCP directly at the hill foot of Pak Fu Shan, to avoid intersecting the two villages. Due to the limited width available between Shenzhen River and Pak Fu Shan, extensive slope cutting works would be required which will inevitably impact the trees on the hillside and the Macintosh Fort at the peak. In addition, engineering constraints are imposed by the need to maintain a reserve for the Shenzhen River training works and by the orientation of the Shenzhen BCP, which would impose a very sharp turning of the vehicular bridges connecting the two BCPs. Given that the width available (approximately 100 m) is insufficient for the scale required for the BCP, and given the additional implications this BCP location would pose on the connecting road alignment and the operability of the BCP, this option was deemed as unsuitable and not investigated further.

**BCP Option 2 – between Chuk Yuen and Tsung Yuen Ha**

This option (shown in **Figure 2**) involves locating the BCP within the land available between the two village environs, to avoid the need for village resumption. This option is preferable from a preservation perspective, as both villages are considered to be traditional villages of high cultural and heritage value and also potentially high in ecological value. However, in order to fit between the two village environs, the BCP would need to be irregularly shaped. This poses a number of disadvantages to the management, operation and security of the BCP. From the operational perspective, the layout forces the operational facilities to be separated in portions, leading to an undesirable and inefficient layout for operation and control. Options for internal traffic circulation would be severely restricted, and security may also be compromised due to the segregated control area. Aside from engineering issues, this option may also pose environmental impacts particularly to the two adjacent villages, which are located immediately on either side of the BCP. At such



close proximity, air pollution from idling cross boundary traffic is expected to cause over-exceedance of the Air Quality Objectives at the villages for most of the year. Significant noise impact from manoeuvring vehicles is also anticipated to occur despite the potential for mitigation with noise barriers. The village of Chuk Yuen will be most adversely affected, as it would be surrounded on 270 degrees by the BCP and its associated visual intrusions such as the security fencing and noise barriers. Nighttime lighting from the BCP may also cause nuisance. Other long term impacts include the need for slope cutting of the hilly area south of Tsung Yuen Ha, which will affect the permitted burial grounds and result in loss of trees.

Aside from operational phase impacts, during the construction phase, adverse impacts to the local villages will also be felt, as the villages would be in very close proximity to the construction site for the BCP and the Shenzhen River training works, as well as the diversion works for the Kong Yiu Channel, which will occur in parallel, thereby presenting cumulative environmental impacts. Since Chuk Yuen village in particular would be surrounded by construction works, extreme air and noise pollution during construction phase would occur, as well as inconveniences resulting from the associated utilities, infrastructure and traffic diversions.

Given the aforementioned issues, this option for the BCP location is not considered desirable from either operational or environmental perspectives, and it can be concluded that the benefit of avoiding village resumption does not outweigh the long term costs associated with this option.

**BCP Option 3 – resumption of Chuk Yuen**

This option (shown in **Figure 2**) involves locating the BCP directly southwest of the Shenzhen BCP and entirely west of the Kong Yiu Channel, hence requiring the resumption of Chuk Yuen Tsuen and Chuk Yuen Ha Tsuen. From the engineering and operational perspectives, this location for the BCP is considered ideal, as it allows the layout of the BCP to be compact and flexible, thus improving the operation of the BCP, and also the engineering requirements associated with the Shenzhen River training works and improvements to Lin Ma Hang Road. Diversion of Kong Yiu Channel can also be avoided. From an environmental perspective, this BCP location provides more separation distance from the nearest sensitive receivers (at Tsung Yuen Ha village) , which reduces the potential air, noise and visual impacts on the village and provides more flexibility for implementing any mitigation measures that may be required during construction and operation phase. Chuk Yuen Village will also no longer be subject to unacceptable adverse impacts due to their proximity to the BCP. However, it must be noted that village resumption means the permanent loss of the original traditional village, which will inevitably impact the indigenous villagers and their historical and cultural traditions and values. This adverse impact cannot be understated, but with proper consideration of the needs of the villagers and respect of their traditions and values, it is possible to compensate with the re-provision of a village setting that meets the wishes and requirements of the villagers, thereby limiting the impacts associated with resettlement to acceptable levels.

**Preferred Option for the BCP**

From the aforementioned discussion on the pros and cons of the three options for the BCP location, Option 3 has been identified as the preferred option, both from an engineering and environmental standpoint, as it is clear that Option 1 is technically not suitable while Option 2 presents too many disadvantages from the technical perspective and is unacceptable in terms of the environmental impacts it would pose on the nearby sensitive receivers.

## BCP Layout

The main items that govern the overall layout of the BCP are the arrangements for the processing kiosks for goods vehicles and the arrangements for the processing of passenger vehicles. As both the Hong Kong

and Shenzhen sides are subject to land constraints, to maximise the efficiency and operability of the BCP, the following conditions were recommended for the layout:

- Both Shenzhen and Hong Kong adopted a 'multi-storey arrangement and open air approach' for the BCP with goods vehicle processing on ground level and passenger vehicles on upper storey;
- Parallel arrangement of checkpoint kiosks – to allow efficient and flexible operation and permit expansion;
- Central reserve at Kiosk Plaza – for expansion or as a public, park and ride facility if the BCP area is de-restricted as part of the Boundary Closed Area development plan;
- Provide elevated personnel access system – to allow safe, sheltered, securable and convenient access to all the staff posts;
- Provide Immigration Department and Customs & Excise Department Buildings above the Passenger Hall – to allow more efficient use of the ground level and convenient staff travel to posts in passenger hall;
- Combined Departure/Arrival Passenger Hall – to optimise operational efficiency and traveller convenience.

Based on these conditions, an initial layout design for the BCP was developed (**Figure 3**).

**Passenger Hall**

The option for an integrated passenger hall to accommodate both Hong Kong and Shenzhen customs and immigration facilities was considered in the Feasibility Study. The benefits of integrating the passenger hall would potentially mean less land requirement for the BCP on Hong Kong side, with it associated reductions in environmental impact. During the investigation into the feasibility of this integrated option, a number of constraints and concerns were identified, including difficulties in dividing the operation and management of the building between the two authorities and difficulties in coordinating the planning, design and engineering of the building over Shenzhen River, amidst the 'Regulation of Shenzhen River Stage IV' works. Consequently, it has been mutually accepted by both sides that two separate Passenger Halls will be constructed with a pedestrian bridge linking the two, but the design of the integrated passenger hall shall provide the greatest convenience for travellers. Although the passenger bridge across the Shenzhen River will be provided linking the Shenzhen side and HK side passenger terminal building, the walking distance between the passengers' immigration kiosks and customs checkpoints of the two sides will be minimized as far as practicable, and close liaison between both sides will be maintained to ensure consistency in design and to facilitate the future smooth operation of the BCPs.

## Connecting Road – Preliminary Alignment Options

Initially, three preliminary alignment options were identified by Highways Department, shown in **Figure 4**. These three alignment options were based on topographical constraints and the potential locations for connecting the alignment to Route 9. Upon further baseline condition review, the alignment options were expanded to a total of eight different routes/sub-routes for initial evaluation as part of the Feasibility Study (**Figure 5**). A summary of the evaluation result is shown in **Table 1** below.

Table 1: Summary of Initial Alignment Options Evaluation

| Alignment Option | Pros | Cons |
|---|---|---|
| 1A | ■ Meets desired traffic flow of 80 km/hr.<br>■ Minimal impact on Ping Che open storage zone.<br>■ Aligned to avoid direct impact on all village zones on the two sides of Sha Tau Kok Road.<br>■ Slip roads to connect Sha Tau Kok Road.<br>■ Interchange with Fanling Highway<br>■ Favoured by traffic using Tolo Highway.<br>■ No NENT NDA is affected. | ■ Many tunnel sections. Construction and recurrent cost will be relatively high. Construction could also be time consuming.<br>■ Three tunnel ventilation building will be required.<br>■ Alignment is closest to Pat Sin Leng Country Park and Lau Shui Heung Reservoir.<br>■ Difficult access as some permitted burial grounds are affected. |
| 2A | ■ Meets desired traffic flow of 80 km/hr.<br>■ Aligned to avoid direct impact on all village zones in the Ta Kwu Ling and Hung Lung Hang areas.<br>■ Slip roads to connect Ping Che Road.<br>■ Slip roads to connect Jockey Club Road and Man Kam To Road.<br>■ Slip roads to join Sha Tau Kok Road near Fanling. | ■ Road does not favour traffic using Tolo Highway.<br>■ In conflict with village zone of Sheung Shui Wa Shan.<br>■ Affects considerable numbers of permitted burial grounds and graves at Wa Shan.<br>■ In the vicinity of Fung Wong Wu Fung Shui woodlands.<br>■ Disturb both Ping Che/Ta Kwu Ling and Fanling North NDAs. |
| 3A | ■ Meets desired traffic flow of 80 km/hr.<br>■ Further away from country parks and irrigation reservoir compared to Option 1A.<br>■ Interchange with Fanling Highway.<br>■ Favoured by traffic using Tolo Highway.<br>■ No NENT NDA is affected. | ■ Archaeological site at Ping Che and Queen's Hill are affected.<br>■ Impact on open storage zone at Ping Che.<br>■ Shallow cover problem when tunnelling in small hills. Open excavation results in large amount of grave resumption and tree felling.<br>■ In the vicinity of Fung Shui woodlands.<br>■ In close proximity of "Lung Shan Temple".<br>■ Difficult access for construction. |
| 4A | ■ Widening of existing Man Kam To Road. Land resumption will be less.<br>■ Fast track upgrading works over other options.<br>■ No impact on village zones.<br>■ No archaeological or cultural heritage impact.<br>■ Less impact on permitted burial grounds.<br>■ Easy access for construction. | ■ Many junctions and run-ins along existing Man Kam To Road. Road speed is likely to be limited to 50 km/hr with at-grade roundabouts and signalised junctions.<br>■ Road serving both Man Kam To and Heung Yuen Wai BCPs. If there is traffic congestion, both BCPs will be affected.<br>■ No direct interchange with any trunk route e.g. Fanling Highway.<br>■ Widening works along existing road require extensive temporary traffic arrangements.<br>■ Local roads in Sheung Shui may require improvement in order to take up the extra traffic from this option.<br>■ Widening at some locations along the single lane Lin Ma Hang Road could be difficult. |
| 5A | ■ Meets desired traffic flow of 80 km/hr.<br>■ Slip roads to connect Ping Che Road.<br>■ Slip roads to join Sha Tau Kok Road near Fanling.<br>■ Aligned to avoid direct impact on all village zones in the Ta Kwu Ling and Hung Lung Hang areas.<br>■ Less impact on permitted burial grounds. | ■ Encroach onto San Wai Tai Leng Firing Range, occupied by the People's Liberation Army.<br>■ Within the clearance zone of water tunnel.<br>■ In conflict with village of Siu Hang Tsuen.<br>■ In the vicinity of Fung Wong Wu Fung Shui woodlands.<br>■ Disturb Ping Che/Ta Kwu Ling NDA. |
| 6A | ■ Meets desired traffic flow of 80 km/hr.<br>■ Slip roads to connect Ping Che Road.<br>■ Slip roads to join Sha Tau Kok Road near | ■ Encroach onto San Wai Tai Leng Firing Range, occupied by the People's Liberation Army.<br>■ Within the clearance zone of water tunnel. |

| Alignment Option | Pros | Cons |
|---|---|---|
| | Fanling.<br>■ Aligned to avoid direct impact on all village zones in the Ta Kwu Ling and Hung Lung Hang areas.<br>■ Less impact on permitted burial grounds. | ■ In conflict with village of Siu Hang Tsuen.<br>■ Close to Chung Him Primary School near Tong Hang.<br>■ In the vicinity of Fung Wong Wu Fung Shui woodlands.<br>■ Disturb Ping Che/Ta Kwu Ling NDA. |
| 7A | ■ Meets desired traffic flow of 80 km/hr.<br>■ Slip roads to connect Ping Che Road.<br>■ Slip roads to join Sha Tau Kok Road near Fanling.<br>■ Aligned to avoid direct impact on all village zones in the Ta Kwu Ling and Hung Lung Hang areas.<br>■ Some impact on permitted burial grounds. | ■ Encroach onto San Wai Tai Leng Firing Range, occupied by the People's Liberation Army.<br>■ Likelihood of tunnelling in soft and hard ground materials, causing difficulties in design and construction.<br>■ In conflict with village of Siu Hang Tsuen.<br>■ Close to Chung Him Primary School near Tong Hang.<br>■ Hung Leng Archaeological Site is affected<br>■ In the vicinity of Fung Wong Wu Fung Shui woodlands.<br>■ Disturb Ping Che/Ta Kwu Ling NDA. |
| 7B | ■ Meets desired traffic flow of 80 km/hr.<br>■ Very short tunnel section.<br>■ Slip roads to connect Ping Che Road.<br>■ Slip roads to join Sha Tau Kok Road near Fanling.<br>■ Aligned to avoid direct impact on all village zones in the Ta Kwu Ling and Hung Lung Hang areas.<br>■ Less grave issues. | ■ Cut through area of San Wai Barracks, occupied by the People's Liberation Army.<br>■ In conflict with village of Kan Lung Tsuen.<br>■ Hung Leng Archaeological Site is affected<br>■ In the vicinity of Fung Wong Wu Fung Shui woodlands.<br>■ Disturb Ping Che/Ta Kwu Ling NDA. |

Of the eight preliminary alignment options, only Option 1A, 2A and 4A were recommended for further assessment in the Feasibility Study. Options 3A, 5A, 6A, 7A and 7B were rejected on the following grounds:

- Option 3A would require open cut excavation works which would induce substantial environmental impacts and offer no substantial benefits over Option 1A, therefore it is considered reasonable to omit Option 3A at this stage.
- Options 5A, 6A, 7A and 7B encroach onto lands occupied by the Hong Kong Garrison of the People's Liberation Army which should be avoided as far as possible. Coupled with the other disadvantages as stated in **Table 1**, there is insufficient benefit and no reasonable justification for further consideration of these options.

## Connecting Road – Feasible Alignment Options

Following from the screening of alignment options, three alignment options (Option 1A, 2A and 4A) were selected for further assessment under the Feasibility Study. The three alignment options are shown in **Figure 6** and described below.

**Option 1A**

Option 1A is the easternmost route among the three options initially identified in the Feasibility Study. The main line is 9.4 km long with 3.5 km of tunnel sections and interchange with Fanling Highway adjacent to Wo Hop Shek Cemetery. The main line starting from the BCP is a viaduct structure that passes north of



Ping Yeung before becoming a tunnel section through Cheung Shan, then emerging east of Wang Shan Keuk San Tsuen and forming an interchange with Sha Tau Kok Road before continuing southwards near Tan Chuk Hang Lo Wai, becoming a tunnel south of Sze Tei Shan, with a small re-emerged viaduct section over Kwan Tei River before entering a tunnel section through Lung Shan with final re-emergence at Kiu Tau and interchanging at Fanling Highway.

**Option 2A**

The main line of Option 2A is 10.6 km long with 0.4 km of tunnel section. From the BCP, the alignment travels southwards and forms a connection with Ping Che Road, then travels over the area of Hung Lung Hang before tunnelling through Wa Shan. The alignment emerges at Sheung Shui Wa Shan, and splits into a connection with Man Kam To Road / Po Shek Wu Road. The rest of the alignment travels south eastwards past Ng Tung River, then interchanging with Sha Tau Kok Road, before travelling southwards and ending in an interchange at Fanling Highway near Wo Hop Shek Cemetery.

**Option 4A**

Option 4A is 6 km long with 0.3 km of tunnel. The alignment from the BCP travels southwards adjacent to Lin Ma Hang Road, then veers eastwards along the border before tunnelling through Lo Shue Ling and emerging just east of the Man Kam To BCP. The alignment then connects to the existing Man Kam To Road and follows the road southwards to Sheung Shui.

**Comparison of Options**

In the Feasibility Study, each of the three options was rated according to a set of impact parameters. A summary of the ratings for each of the options are presented below:

*Planning and Land Matters*

Option 1A has the least impact on current land use and future development of the FCA and will not affect any planned NDAs, however, some land resumption and grave relocation will be required. Option 2A encroaches onto more 'sensitive' zonings including "I" and "OU (Port Back-up Uses)", which will require more land use changes and resumption, and also passes through an NDA, which will disrupt planning and bring adverse environmental nuisance to the future population of the NDA. Option 4A encroaches onto some "G/IC" and "V" (village) zones but has generally less impact on existing land uses and graves, though this alignment may generate some environmental nuisance to the future population of the NDAs.

*Environmental Issues and Local Community*

Option 1A passes through mainly sparsely populated rural settings, hence is not anticipated to generate significant air and noise impacts, however, it has the longest tunnel alignment and will generate larger volumes of C&D waste. The alignment will also impact the ecology of the rural area and may also impact known heritage resources. Landscape and visual impacts can be mitigated with compensatory planting. No unacceptable water quality impacts are expected, and no direct impact with village zones but the close proximity of the alignment will affect some permitted burial grounds and fung shui areas.

Option 2A is not anticipated to generate adverse air quality impacts based on preliminary investigations, but may induce some noise and visual impacts to the future NDAs. The alignment will also directly impact one archaeological site and known heritage resources. The faunal diversity is fairly low, but wildfowl are present in the wet agricultural lands. Waste and water quality impacts are not anticipated. The alignment

will be in close proximity to villages in Ta Kwu Ling area, and will affect some permitted burial grounds and fung shui areas.

Option 4A travels mostly along existing roads and mitigation measures will be required for operational phase road traffic noise, however, retrofitting noise barriers may be difficult due to site constraints. The viaduct structures will also cause visual impacts, but these can be minimised with mitigation measures. No adverse air quality impact is anticipated based on preliminary investigation. Ecological, cultural heritage, waste and water quality impacts are also not anticipated to be significant. Local traffic will be affected by the construction works, and noise barrier retrofitting will cause inconvenience to local residents.

*Transport Planning*

Option 1A is considered to rate highest for transport planning as this option provides the most direct and fast connection and will not interfere with local traffic, however, this option also provides less connection to the local traffic network. Option 2A provides a bypass for the Man Kam To cross-boundary traffic and an alternative route for domestic traffic to access Fanling Highway, but some LT/HYW traffic will have to access Fanling Highway via local roads. Option 4A shares the same traffic corridor as Man Kam To BCP and all cross-boundary traffic will be loaded on the Sheung Shui local network, which will not improve the overall traffic performance at Sheung Shui and Fanling.

*Engineering*

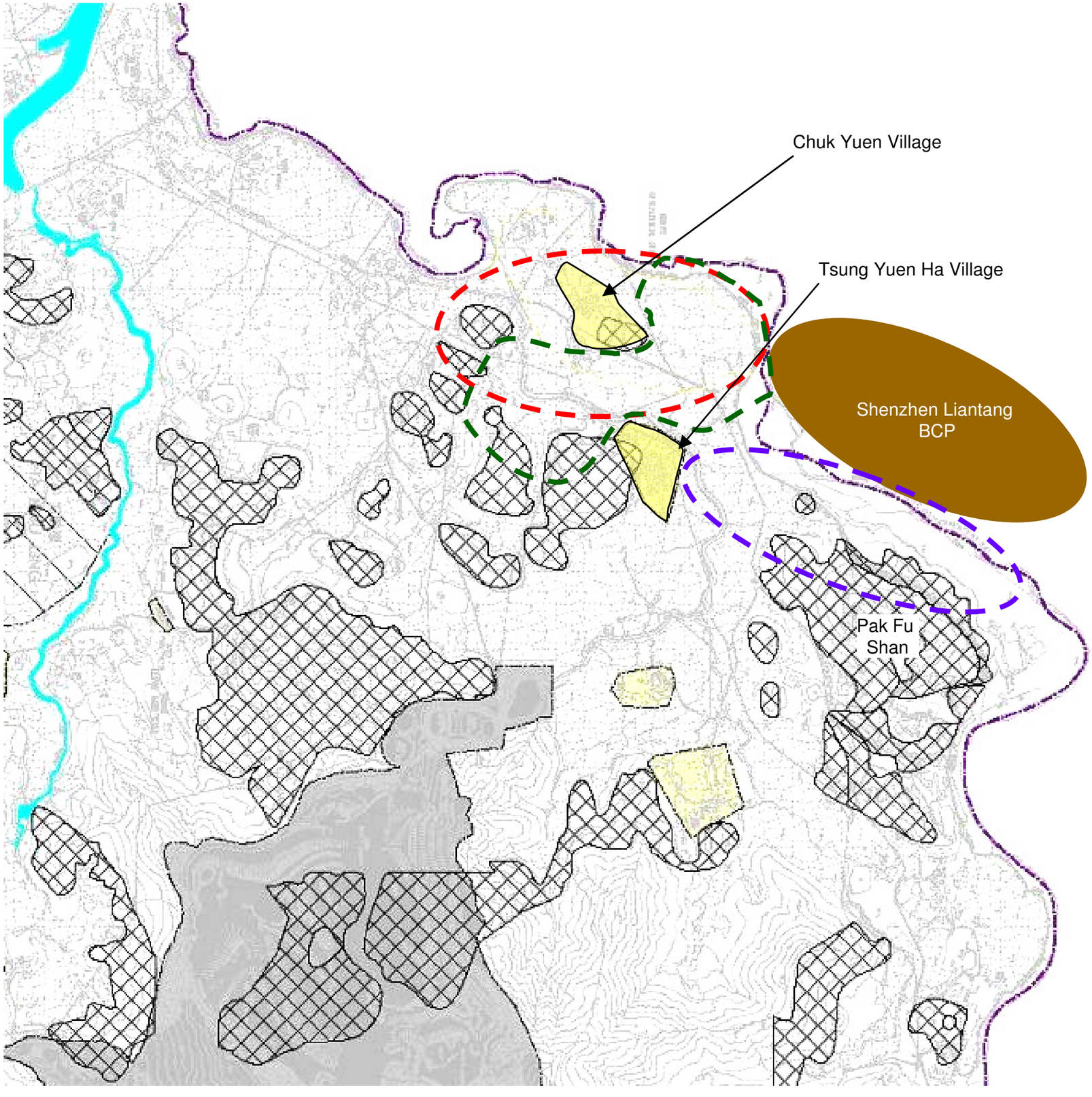
For both Options 1A and 2A, general construction practicality, safety, design and operation and maintenance (O&M) are not anticipated to experience any significant problems, however for Option 4A, the existing watermains along Man Kam To Road will be a major constraint to construction, while the retrofitting of noise barriers will also be difficult.

*Programme and Costs*

Option 1A will experience higher construction and other costs due to the longer alignment and longer tunnel lengths, however, no significant implications on programme is anticipated. Option 2A may experience higher clearance and compensation costs and the interface with the planning of future NDAs may affect the pre-construction programme. Option 4A has the lowest construction and related costs, but may experience difficulties during construction stage due to interface with existing roads.

**Preferred Option for the Alignment**

Based on the above considerations, the preliminary assessment identified Option 1A as the alignment with the overall least adverse impacts, hence this alignment was put forward and adopted in the EIA Study Brief No. ESB-199/2008.




LEGEND

- Option 1 – Foothills of Pak Fu Shan
- Option 2 – Between Chuk Yuen and TsungYuen Ha
- Option 3 – Resumption of Chuk Yuen
- Shenzhen Liantang BCP
- Village Zones
- Permitted Burial Grounds
- NENT Landfill Site
- HK/SZ Administrative Boundary
- River

Remarks

These figures are based on the 2007 'Planning Study on Liantang/Heung Yuen Wai Cross-boundary Control Point and its Associated Connecting Roads in Hong Kong – Feasibility Study'.

| Rev | Date | Drawn | Description | Ch'k'd | App'd |
|---|---|---|---|---|---|

Mott MacDonald
20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

Client

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

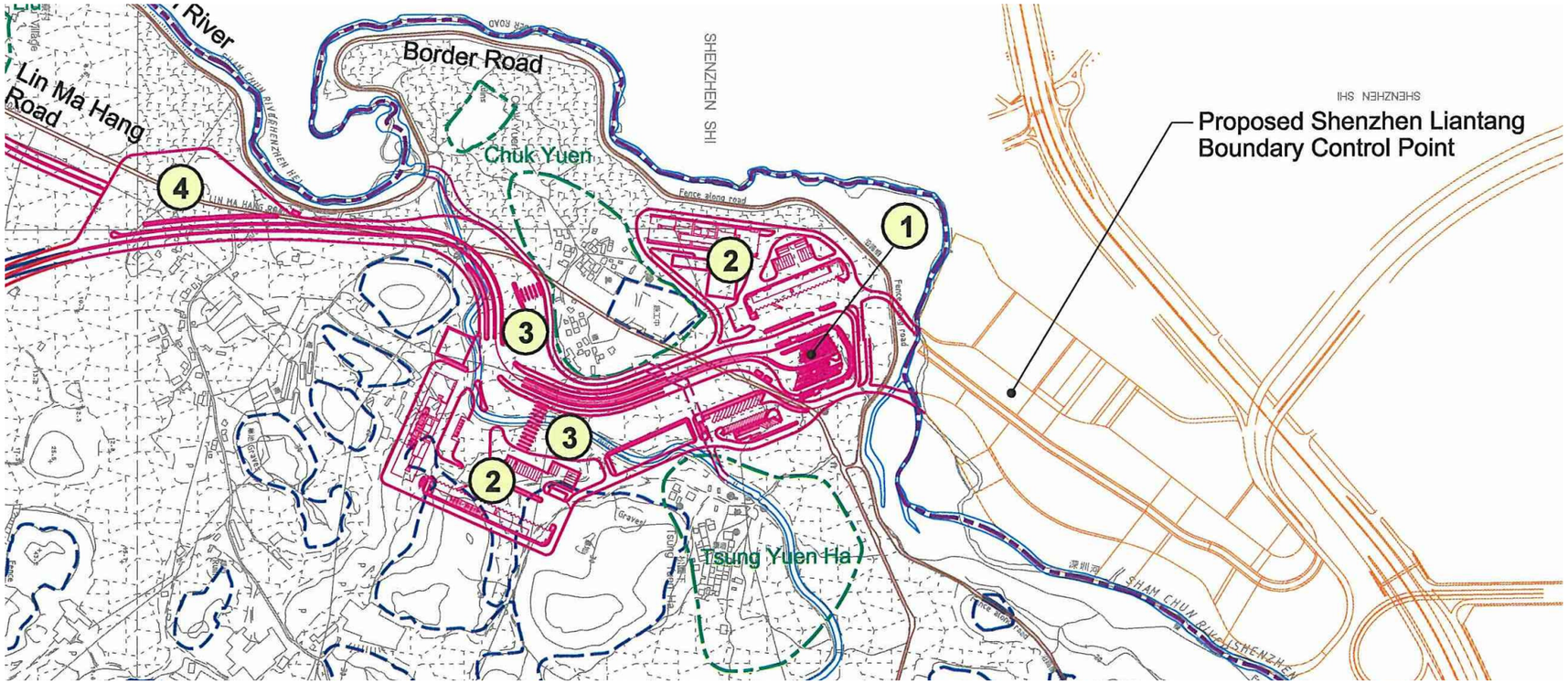
AGREEMENT NO. CE45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CROSSING POINT AND ASSOCIATED WORKS

Title

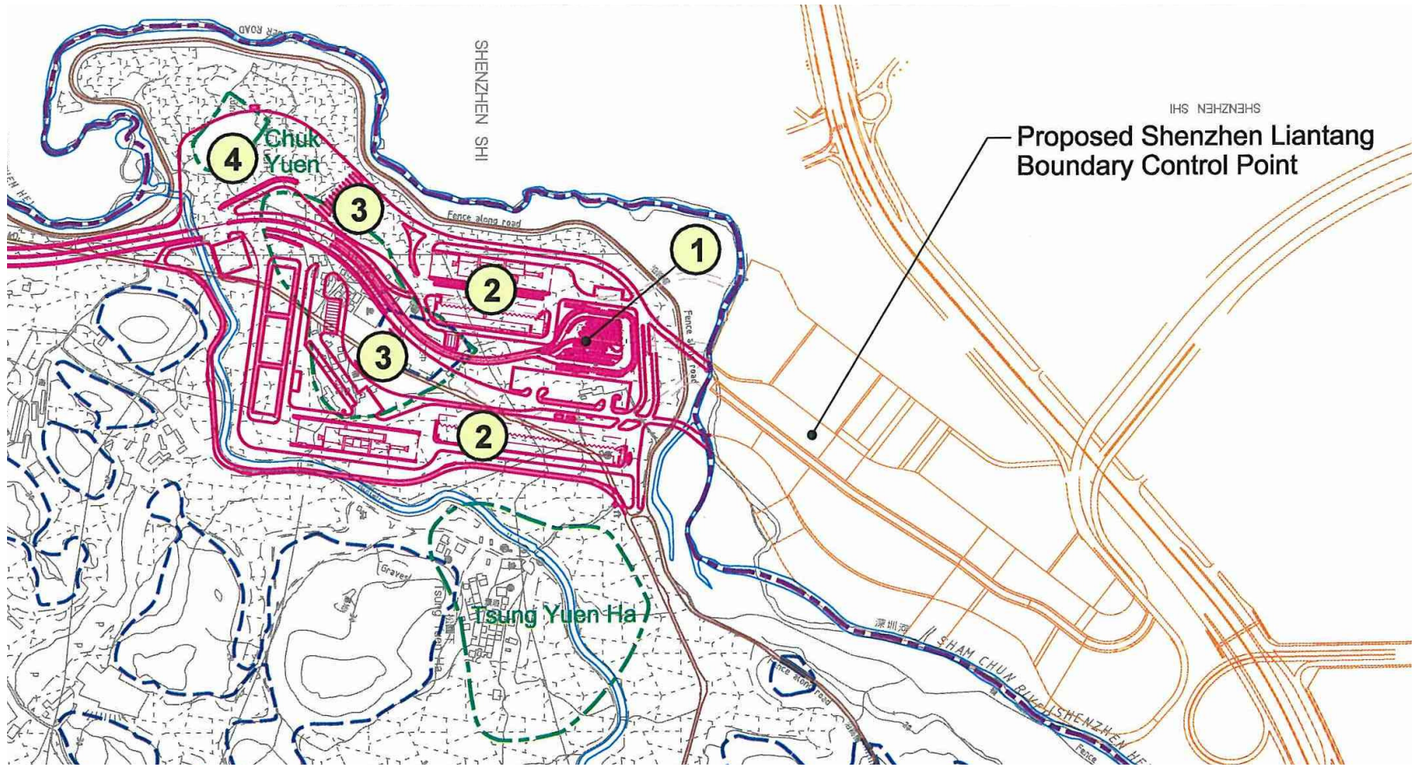
BCP Feasibility Options – Indicative Locations

| | | | | | |
|---|---|---|---|---|---|
| Designed | | | Eng.Chk. | | |
| Drawn | | | Coordination | | |
| Dwg.Chk. | | | Approved | | |
| Scale at A1 | | Project | 255228 | | Status |
| | | CAD file | | | |
| Drawing No | | | | | Rev |

Figure 1




BCP Option 2 – Between Chuk Yuen and Tsung Yuen Ha




BCP Option 3 – Resumption of Chuk Yuen

**Legend**

1. Passenger Hall at Upper Level
2. Cargo Examination Area
3. Processing Kiosks for Goods Vehicles
4. Vehicle Holding Area

- HK/SZ Administrative Boundary
- Village Environ Boundaries
- Permitted Burial Ground
- Main Drainage Watercourse
- Major Road Network

Remarks

These figures are extracted from the 2007 'Planning Study on Liantang/Heung Yuen Wai Cross-boundary Control Point and its Associated Connecting Roads in Hong Kong – Feasibility Study'.

| Rev | Date | Drawn | Description | Ch'k'd | App'd |
|---|---|---|---|---|---|
| | | | | | |

Mott MacDonald
20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

Client

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

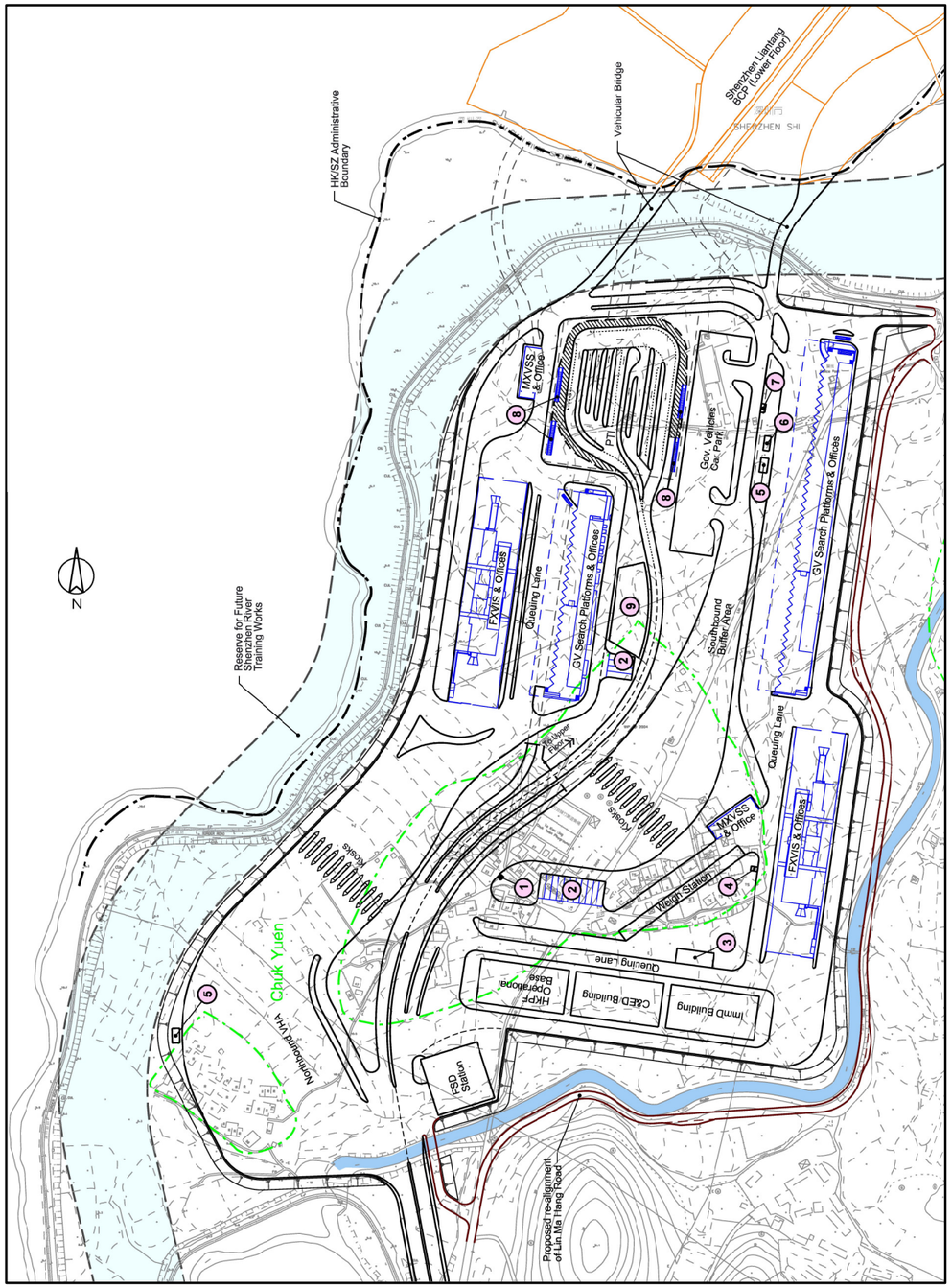
AGREEMENT NO. CE45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CROSSING POINT AND ASSOCIATED WORKS

Title

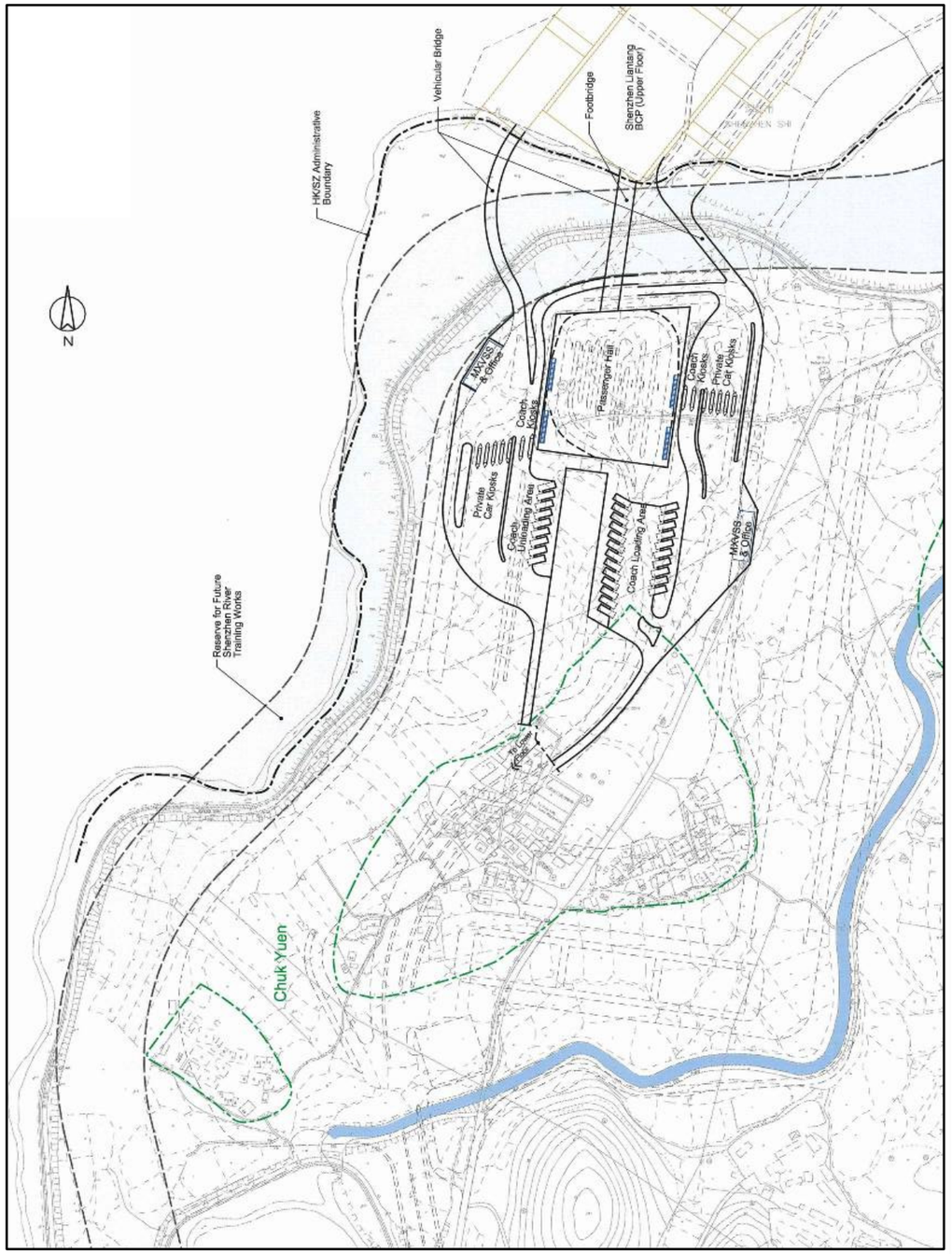
BCP Feasibility Options
- Preliminary Layouts

| | | | | | |
|---|---|---|---|---|---|
| Designed | | | Eng.Chk. | | |
| Drawn | | | Coordination | | |
| Dwg.Chk. | | | Approved | | |
| Scale at A1 | | Project | 255228 | | Status |
| | | CAD file | | | |
| Drawing No | | | | | Rev |

Figure 2




Lower Deck




Upper Deck

**Legend :**

1. Police Inspection Post
2. Vehicles Detention Area
3. Dog Kennel Facilities
4. Office for Weigh Station
5. Latrine
6. Village-type Refuse Collection Point cum sub-offices
7. EUVSS Device & Office
8. Escalator & Lift
9. Holding Area for PTI

Proposed Fill Slope

Village Environs

Main Drainage Watercourse

Remarks

These figures are extracted from the 2007 'Planning Study on Liantang/Heung Yuen Wai Cross-boundary Control Point and its Associated Connecting Roads in Hong Kong – Feasibility Study'.

| Rev | Date | Drawn | Description | Ch'k'd | App'd |
|---|---|---|---|---|---|
| | | | | | |


Mott MacDonald
20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk


Client

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

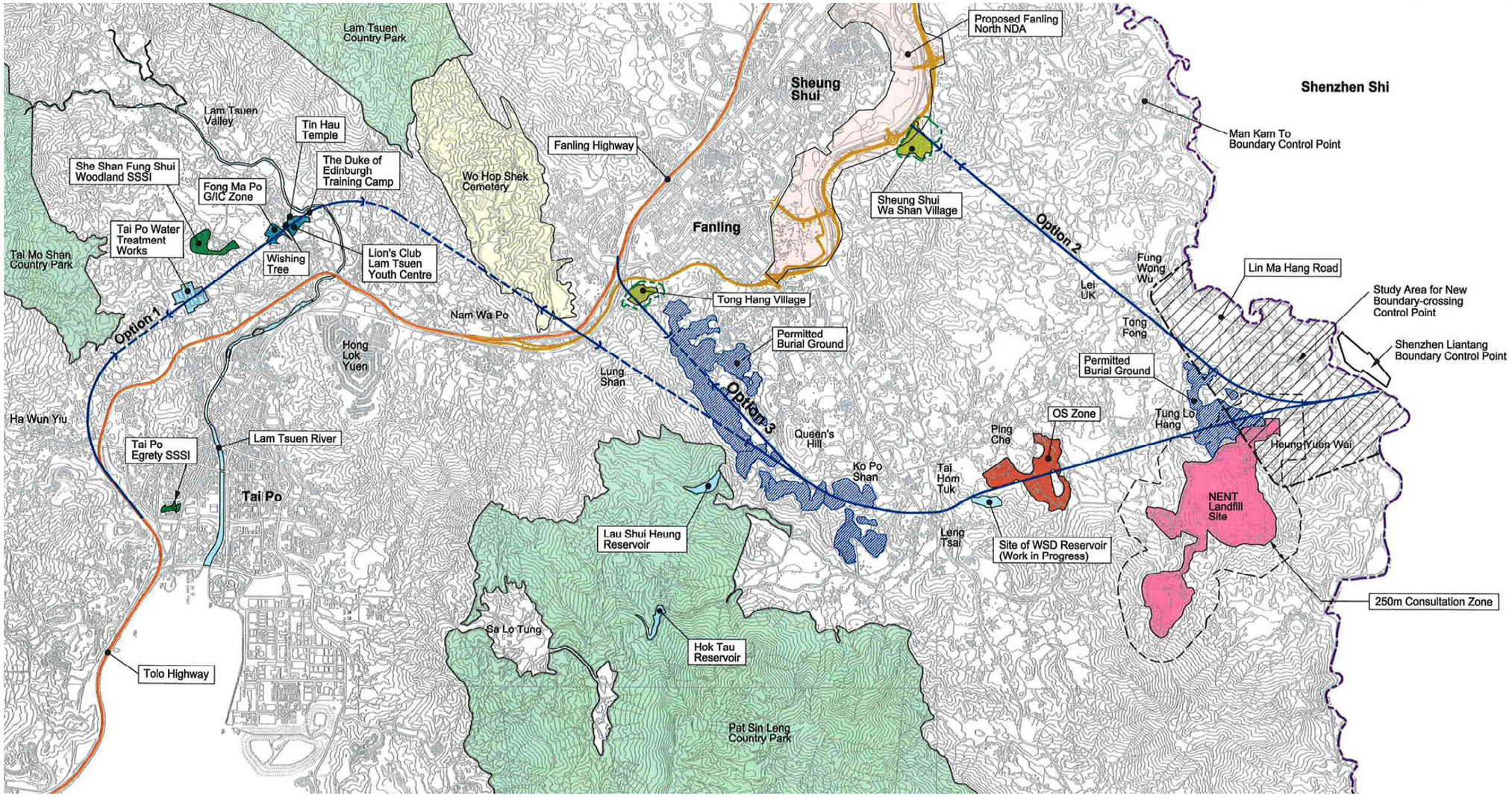
AGREEMENT NO. CE45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CROSSING POINT AND ASSOCIATED WORKS

Title

BCP Initial Layout Design

| | | | | | |
|---|---|---|---|---|---|
| Designed | | | Eng.Chk. | | |
| Drawn | | | Coordination | | |
| Dwg.Chk. | | | Approved | | |
| Scale at A1 | | Project | 255228 | | Status |
| | | CAD file | | | |
| Drawing No | | | | | Rev |

Figure 3




**Legend**

- HK/SZ Border
- Preliminary Alignment Options
- Proposed Fanling Bypass
- Tunnel Section
- Expressway

Remarks

These figures are extracted from the 2007 'Planning Study on Liantang/Heung Yuen Wai Cross-boundary Control Point and its Associated Connecting Roads in Hong Kong – Feasibility Study'.

| Rev | Date | Drawn | Description | Ch'k'd | App'd |
|---|---|---|---|---|---|
| | | | | | |


Mott MacDonald
20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk


Client

CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

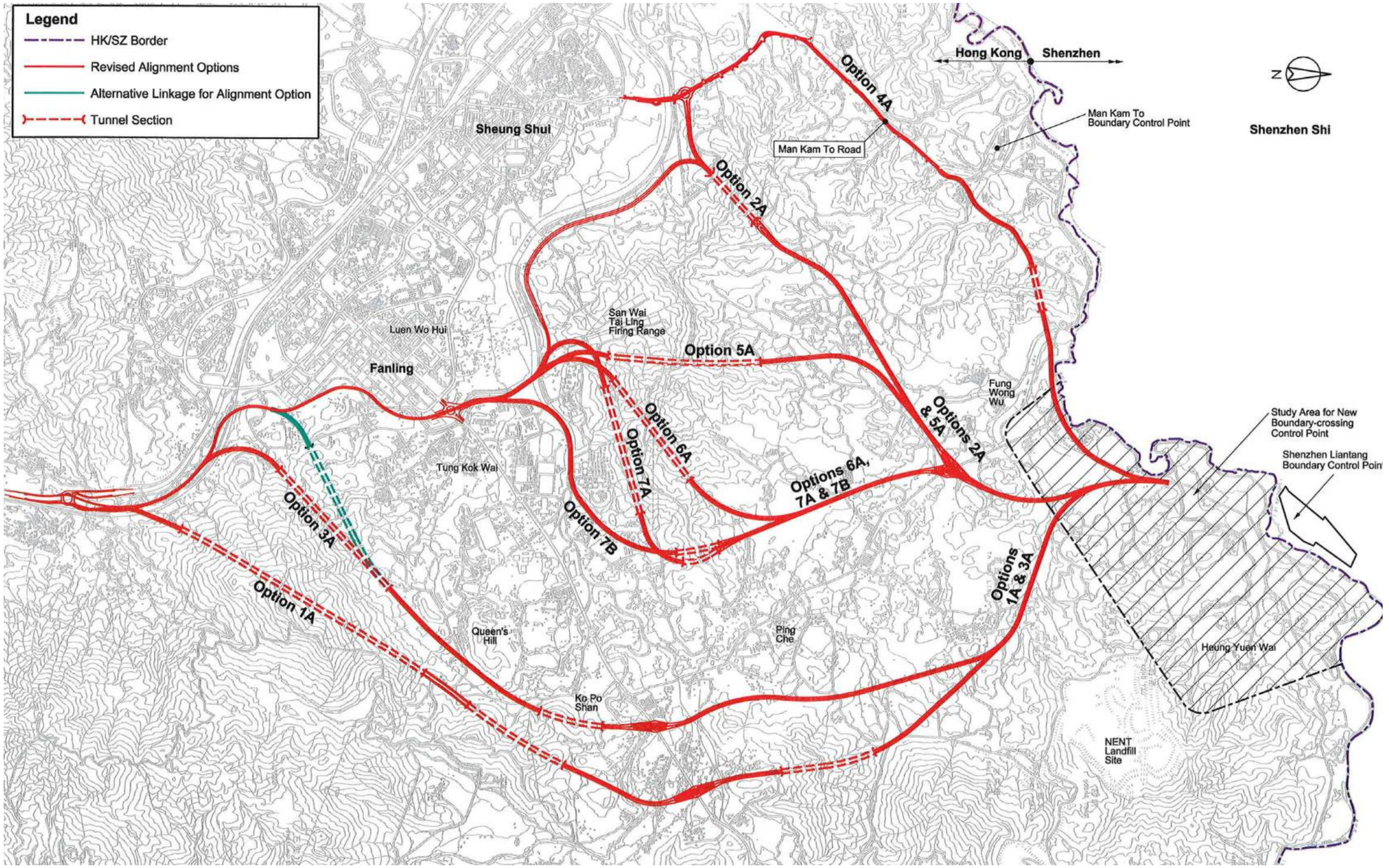
AGREEMENT NO. CE45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CROSSING POINT AND ASSOCIATED WORKS

Title

# Preliminary Connecting Road Alignment Options

| | | | | | |
|---|---|---|---|---|---|
| Designed | | | Eng.Chk. | | |
| Drawn | | | Coordination | | |
| Dwg.Chk. | | | Approved | | |
| Scale at A1 | | Project | 255228 | | Status |
| | | CAD file | | | |
| Drawing No | | | | | Rev |

Figure 4




Remarks

These figures are extracted from the 2007 'Planning Study on Liantang/Heung Yuen Wai Cross-boundary Control Point and its Associated Connecting Roads in Hong Kong – Feasibility Study'.

| Rev | Date | Drawn | Description | Ch'k'd | App'd |
|---|---|---|---|---|---|
| | | | | | |


Mott MacDonald

20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk


Client

CEDD

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

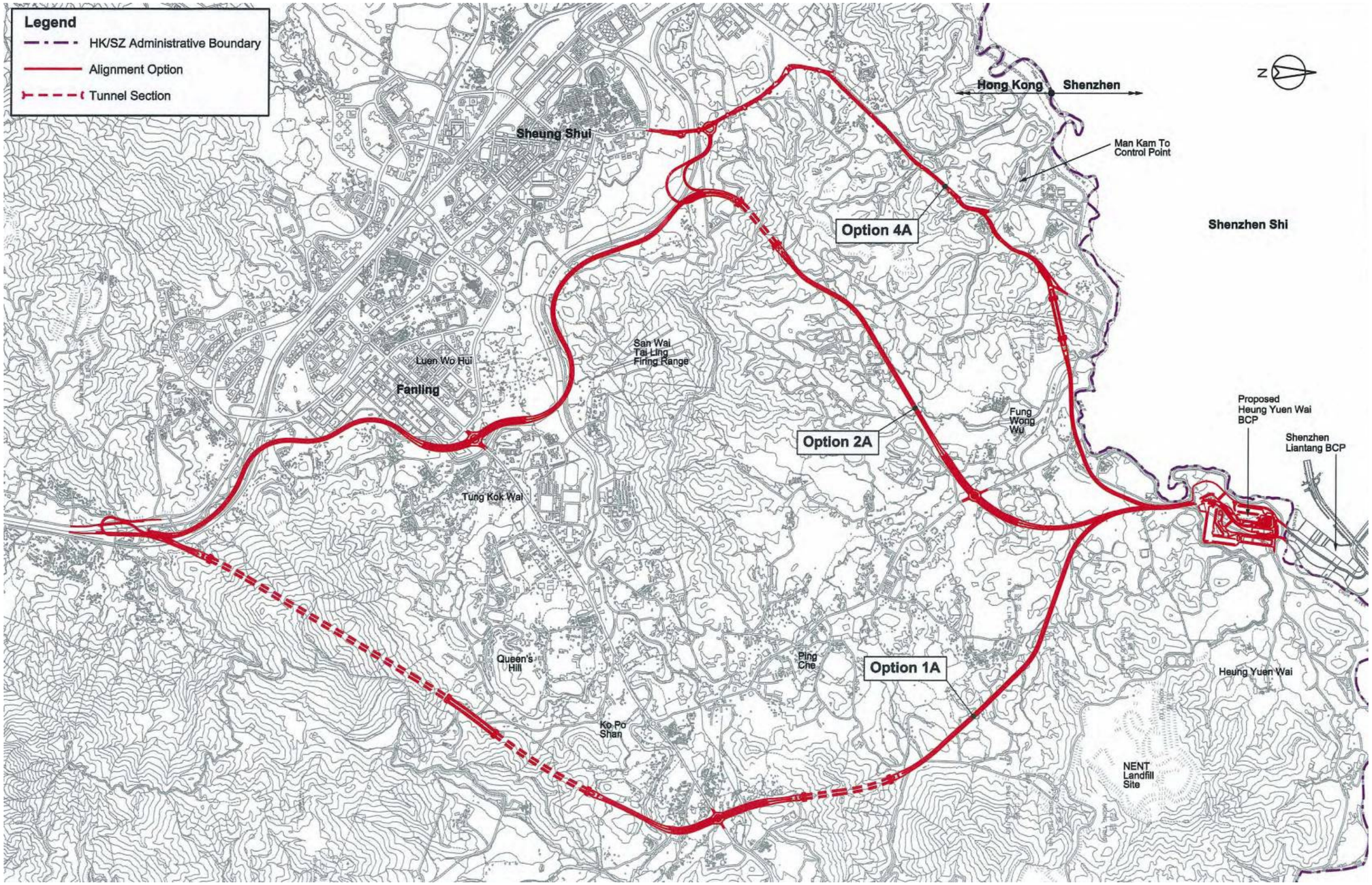
AGREEMENT NO. CE45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CROSSING POINT AND ASSOCIATED WORKS

Title

# Expanded Preliminary Connecting Road Alignment Options

| | | | | | |
|---|---|---|---|---|---|
| Designed | | | Eng.Chk. | | |
| Drawn | | | Coordination | | |
| Dwg.Chk. | | | Approved | | |
| Scale at A1 | | Project | 255228 | | Status |
| | | CAD file | | | |
| Drawing No | | | | | Rev |

Figure 5




Remarks

These figures are extracted from the 2007 'Planning Study on Liantang/Heung Yuen Wai Cross-boundary Control Point and its Associated Connecting Roads in Hong Kong – Feasibility Study'.

| Rev | Date | Drawn | Description | Ch'k'd | App'd |
|---|---|---|---|---|---|
| | | | | | |


Mott MacDonald

20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk


Client

CEDD

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

AGREEMENT NO. CE45/2008(CE)
LIANTANG/HEUNG YUEN WAI BOUNDARY CROSSING POINT AND ASSOCIATED WORKS

Title

# Feasible Connecting Road Alignment Options

| | | | | | |
|---|---|---|---|---|---|
| Designed | | | Eng.Chk. | | |
| Drawn | | | Coordination | | |
| Dwg.Chk. | | | Approved | | |
| Scale at A1 | | Project | 255228 | | Status |
| | | CAD file | | | |
| Drawing No | Figure 6 | | | | Rev |