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For information on  
5 March 2015

LanDAC TTSC Paper No. 05/2015

**Lantau Development Advisory Committee  
Traffic and Transport Subcommittee**

**Planning, Engineering and Architectural Study for Topside Development at Hong  
Kong Boundary Crossing Facilities Island of  
Hong Kong-Zhuhai-Macao Bridge**

**PURPOSE**

This paper briefs Members on the background information, scope and progress of the Planning, Engineering and Architectural Study for Topside Development at Hong Kong Boundary Crossing Facilities Island of Hong Kong-Zhuhai-Macao Bridge (“the Study”).

**BACKGROUND**

2. In recent years, the western Pearl River Delta (“PRD”) has been undergoing rapid development. Upon commissioning of the Hong Kong-Zhuhai-Macao Bridge (“HZMB”) and the Tuen Mun-Chek Lap Kok Link, Lantau will become an essential transport hub for Hong Kong, Zhuhai and Macao. The Hong Kong Boundary Crossing Facilities (“HKBCF”) island, with an area of about 130 hectares and located in close proximity to the Hong Kong International Airport (“HKIA”), will serve as a gateway for Hong Kong and the western PRD and has potential for development of “bridgehead economy”. A location plan for the HKBCF island is at **Annex A**.

3. Utilization of land at the HKBCF island for commercial and other economic activities such as retail, dining, entertainment, convention and exhibition, hotel facilities, creative industries and logistics industries, etc. can capitalize on its unique locational advantage and create synergy among the HKIA, Asia World-Expo, the North Commercial District (“NCD”) on airport island, the HKIA’s Third Runway Project under planning and other tourist and business destinations on Lantau. The commercial development and the development of other economic activities can also create job opportunities in Lantau and Hong Kong as a whole.

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**SCOPE OF THE STUDY**

4. The scope of the Study comprises:
- i) a market demand assessment to predict the demand of different types of commercial development and the development of other economic activities, from both the local and overseas markets including the western PRD;
  - ii) exploration and optimization of the utilization of topside and underground space at the HKBCF island for commercial development and the development of other economic activities;
  - iii) recommendation of an overall development concept for the proposed commercial development and the development of other economic activities with appropriate development parameters, market positioning and operation strategy;
  - iv) ascertaining the technical feasibility on transport facilities (including the western PRD regional transport network), infrastructural capacity, architectural, urban design, visual, environmental, air ventilation, pedestrian circulation, customs, immigration, quarantine clearance and security arrangement issues, while maintaining the daily operation of the HKBCF during construction; and
  - v) assessment of the financial viability of proposed commercial development and the development of other economic activities in HKBCF.

**INITIAL CONSIDERATIONS AND KEY ISSUES OF THE STUDY**

Market Positioning and Operation Strategy

5. In the market positioning study, a market demand assessment on the local and western PRD will be carried out to determine the suitable types of commercial and other economic activities at the HKBCF island. The Study will also fully consider the market positioning and operation strategy of the NCD and other major developments being planned or in progress in North Lantau including Tung Chung, Sunny Bay and Siu Ho Wan Reclamation, etc. so as to create synergy among the projects. The Study will also benchmark successful overseas cases of airport commercial development projects for

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formulating suitable development proposals for the topside development at the HKBCF island which will enhance the development of “bridgehead economy” and benefit Hong Kong as a whole.

### Transport and Traffic Connections

6. Transport and traffic networks (both road based and rail based) connecting the proposed development with the NCD, the HKIA, Tung Chung and the surroundings areas will be planned to create synergy for development of “bridgehead economy”. The Study will evaluate the traffic and transport impacts of the proposed development and recommend mitigation measures.

### Environmental Impact Assessment

7. The Study will carry out environmental impact assessment for the proposed commercial and other economic activities and the supporting infrastructural provisions with respect to water quality, air, noise, and visual impacts, etc. The Study will also recommend mitigation measures to ensure that no adverse impacts will be brought to the environment.

### Interface with the HKBCF

8. Preliminary review shows that the proposed development will have substantial interfaces with the HKBCF during the construction and operation phases including the customs, immigration and quarantine activities within the designated “Closed Area”, and requires temporary or permanent reprovisioning of the affected facilities.

9. The Study will examine the architectural feasibility of integrating the proposed commercial development and the development of other economic activities with the boundary crossing facilities. The implementation of the proposed development will be on the premise of not delaying the commissioning of the HZMB and maintaining the daily operation of the HKBCF during construction.

### Airport Height Restrictions

10. Preliminary review indicates that the HKBCF island can provide more than 300,000 square metres of commercial gross floor area. To suit the overall operation of

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the airport, buildings at HKBCF island is subject to the Airport Height Restrictions. To make best use of land resources, the Study will explore the feasibility of underground space development in addition to topside development and will take full account of cost effectiveness.

### **CURRENT PROGRESS**

11. The Study, co-managed by the Civil Engineering and Development Department and the Planning Department, commenced on 23 January 2015. It will last for about 25 months and is scheduled for completion by early 2017.

12. The Consultant is currently undertaking the market positioning study for formulation of the overall development concept, operation strategy and land use proposals for commercial development and the development of other economic activities.

### **ANNEXES**

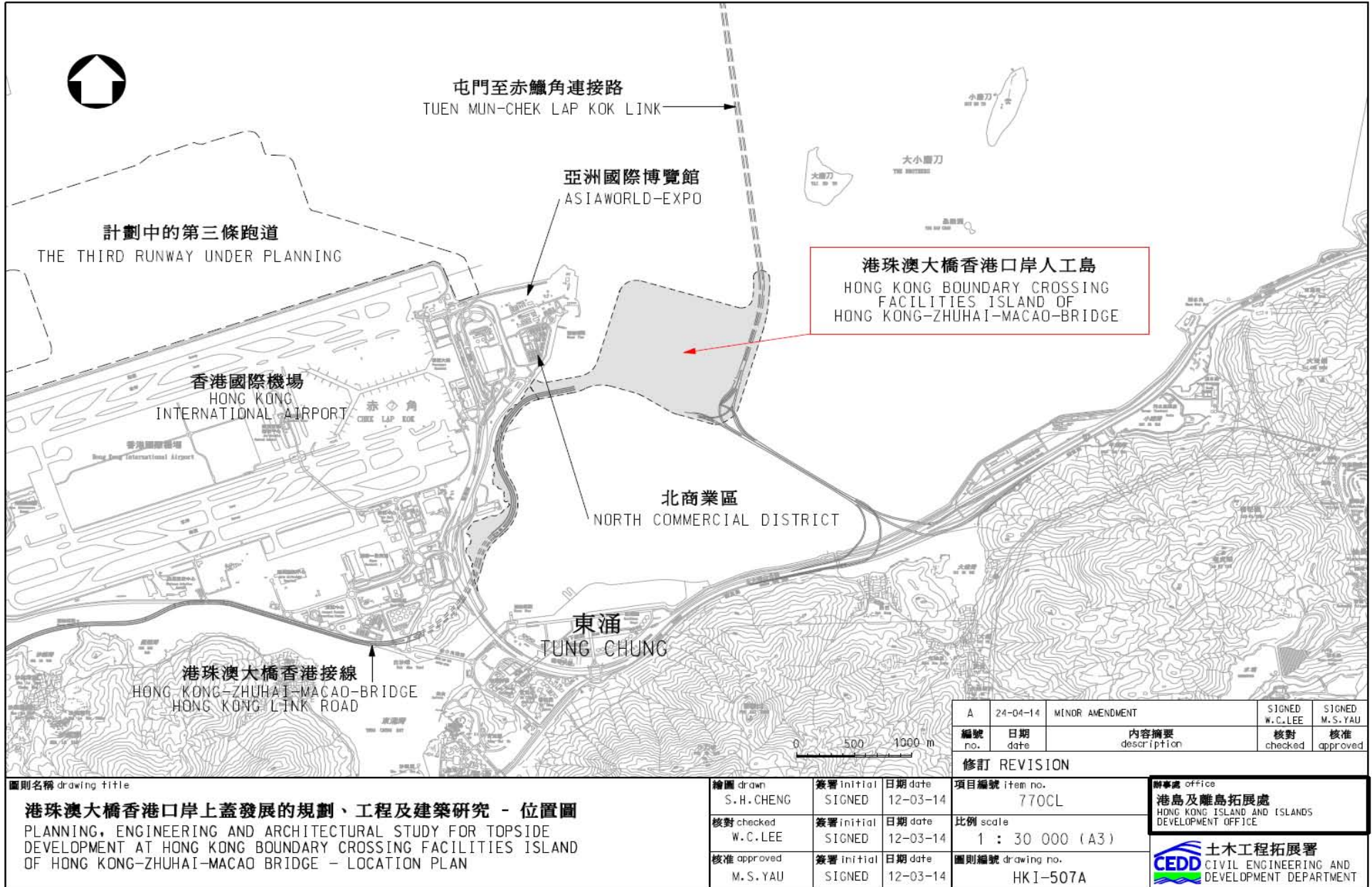
Annex A: Location plan for the HKBCF island

Annex B: FCR(2014-15)46A - Supplementary Note to Item for Finance Committee [FCR(2014-15)46] issued on 17 October 2014

**Civil Engineering and Development Department**  
**Planning Department**  
**March 2015**

770CL - Planning, engineering and architectural study for topside development at HKBCF island of HZMB

770CL - 港珠澳大橋香港口岸上蓋發展的規劃、工程及建築研究



A	24-04-14	MINOR AMENDMENT	SIGNED W.C.LEE	SIGNED M.S.YAU
編號 no.	日期 date	內容摘要 description	核對 checked	核准 approved

修訂 REVISION

圖則名稱 drawing title

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 PLANNING, ENGINEERING AND ARCHITECTURAL STUDY FOR TOPSIDE  
 DEVELOPMENT AT HONG KONG BOUNDARY CROSSING FACILITIES ISLAND  
 OF HONG KONG-ZHUHAI-MACAO BRIDGE - LOCATION PLAN

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S.H.CHENG	SIGNED	12-03-14	770CL
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 DEVELOPMENT OFFICE



土木工程拓展署  
 CIVIL ENGINEERING AND  
 DEVELOPMENT DEPARTMENT

For discussion  
on 17 October 2014

FCR(2014-15)46A

**SUPPLEMENTARY NOTE TO  
ITEM FOR FINANCE COMMITTEE  
[FCR(2014-15)46]**

**PURPOSE**

This note provides an update on the programme, estimated cash flow and estimated project cost for **770CL** “Planning, engineering and architectural study for topside development at Hong Kong boundary crossing facilities island of Hong Kong-Zhuhai-Macao Bridge”.

**JUSTIFICATION**

2. The Public Works Subcommittee recommended on 18 June 2014 that the Finance Committee (FC) approve the upgrading of **770CL** to Category A at an estimated cost of \$61.9 million in money-of-the-day (MOD) prices. The funding proposal was originally scheduled for FC’s consideration on 11 July 2014 but has to be deferred beyond the summer recess.

3. The project scope for **770CL** as recommended in FCR(2014-15)46 remains unchanged. However, due to the lapse of time, we need to make the following necessary revisions to the funding proposal –

- (a) adjusting the project cost estimate to \$63.4 million in MOD prices due to changes in price level (from September 2013 to September 2014) and cash flow requirement;
- (b) updating the deferred programme of the project; and
- (c) adjusting the estimates for consultants’ fees based on latest estimations.

Encl. The paper at the Enclosure has incorporated the above revisions, as well as the modifications to the original project scope as recommended in FCR(2014-15)46. The revisions are shaded in grey for easy reference.

**/PROPOSAL .....**

**PROPOSAL**

4. We invite FC to consider FCR(2014-15)46 in conjunction with FCR(2014-15)46A and to approve the upgrading of **770CL** to Category A at an estimated cost of \$63.4 million in MOD prices.

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Development Bureau  
October 2014

**HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT**

**Civil Engineering – Land Development**

**770CL – Planning, engineering and architectural study for topside development at Hong Kong boundary crossing facilities island of Hong Kong–Zhuhai–Macao Bridge**

Members are invited to recommend to the Finance Committee the upgrading of **770CL** to Category A at an estimated cost of \$63.4 million in money-of-the-day prices for carrying out a planning, engineering and architectural study and the associated site investigation works for the proposed commercial development and the development of other economic activities at the Hong Kong boundary crossing facilities island of Hong Kong–Zhuhai–Macao Bridge.

**PROBLEM**

We need to carry out a detailed study to ascertain the feasibility of the proposed commercial development and the development of other economic activities at the Hong Kong boundary crossing facilities (HKBCF) island of Hong Kong–Zhuhai–Macao Bridge (HZMB).

**PROPOSAL**

2. The Director of Civil Engineering and Development, on the advice of the Director of Planning and with the support of the Secretary for Development, proposes to upgrade **770CL** to Category A at an estimated cost of \$63.4 million in money-of-the-day (MOD) prices to engage consultants to undertake a planning, engineering and architectural study (the Study) and the associated site investigation works for the proposed commercial development and the development of other economic activities at the HKBCF island.



## PROJECT SCOPE AND NATURE

3. The scope of **770CL** comprises –
- (a) a planning, engineering and architectural study to ascertain the feasibility and optimise the scope and scale of the proposed commercial development and the development of other economic activities on the HKBCF island through topside and underground space development, including the formulation of the development proposals, supporting infrastructure and the implementation programme and mechanism;
  - (b) overall development concept, including assessment of the financial viability and recommendation of the market positioning and operation strategy;
  - (c) environmental impact assessment (EIA) for the development proposals and supporting infrastructure;
  - (d) proposals for expediting the availability of the development sites including phased development;
  - (e) community engagement exercise in relation to the formulation of the development proposals; and
  - (f) associated site investigation works including supervision.

— A location plan of the HKBCF island is at **Annex A**.

4. Subject to funding approval of the Finance Committee, we plan to commence the Study in **January 2015** for completion in **February 2017**.

## JUSTIFICATION

5. The western Pearl River Delta (PRD) has undergone rapid development in recent years. When the HZMB and the Tuen Mun-Chek Lap Kok Link are completed in 2016 and 2018 respectively, Lantau will become an essential connecting point for journeys to and from Hong Kong, Zhuhai and Macao. It is projected that the HKBCF would have a daily patronage of 9 200 to 14 000 vehicles and 55 850 to 69 200 passengers in 2016.

6. The HKBCF island has an area of about 130 hectares. With its proximity to the Hong Kong International Airport (HKIA), it will serve as a gateway for Hong Kong and western PRD and has potential for development of “bridgehead economy”. Utilization of land at the HKBCF island for commercial development and the development of other economic activities, such as shopping, dining, entertainment, hotel facilities, creative industries, logistics industries and columbarium can capitalise its unique locational advantage and create synergy among HKIA, AsiaWorld-Expo, the North Commercial District (NCD) on airport island, the HKIA’s Third Runway Project under planning and other tourist and business destinations on Lantau. The commercial development and the development of other economic activities can also create job opportunities on Lantau and Hong Kong as a whole.

7. A preliminary review of supporting infrastructure has been carried out to explore the feasibility of developing commercial development and other economic activities at the HKBCF island. It is concluded that the proposed commercial development and the development of other economic activities will have substantial interfaces with the HKBCF during the construction and operation stage, including the customs, immigration and quarantine activities within the designated “Closed Area” and will involve reprovisioning of the affected facilities on a temporary or permanent basis. As such, the architectural feasibility of integrating commercial development and the development of other economic activities with those boundary crossing facilities has to be examined through a study. Moreover, a convenient vehicular and pedestrian transport network between the proposed development and the NCD, HKIA, Tung Chung and the surroundings will be required to create synergy for developing a successful “bridgehead economy”. Additional engineering infrastructure works including sewerage system and other utilities will also be required to support the proposed commercial development and the development of other economic activities.

8. The Study will recommend an overall concept for the proposed development and appropriate development parameters. The implementation of the proposed development will be on the premise of not delaying the commissioning of the HZMB and maintaining the daily operation of the HKBCF during construction.

## **FINANCIAL IMPLICATIONS**

9. We estimate the costs of the Study and the associated site investigation works to be \$63.4 million in MOD prices (please see paragraph 10 below), broken down as follows –

/(a) .....

	<b>\$ million</b>	
(a) Consultants' fees for	42.1	
(i) planning and architectural study	10.5	
(ii) engineering study	18.2	
(iii) EIA study	10.5	
(iv) financial viability study	2.1	
(v) supervision of site investigation works	0.8	
(b) Site investigation works	7.4	
(c) Expenses for community engagement exercise and other miscellaneous items	3.2	
(d) Contingencies	5.3	
Sub-total	58.0	(in September 2014 prices)
(e) Provision for price adjustment	5.4	
Total	63.4	(in MOD prices )

In view of the multi-disciplinary nature of the Study and inadequate in-house resources, we propose to engage consultants to undertake the Study and supervise the associated site investigation works. A breakdown of the estimates for consultants' fees by man-months is at Annex B.

10. Subject to funding approval, we will phase the expenditure as follows –

Year	\$ million (Sept 2014)	Price adjustment factor	\$ million (MOD)
2014 – 2015	1.6	1.00000	1.6
2015 – 2016	31.3	1.06000	33.2
2016 – 2017	20.1	1.12360	22.6
2017 – 2018	5.0	1.19102	6.0
	58.0		63.4

11. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period from 2014 to 2018. We will engage consultants to undertake the Study on a lump sum basis with provision for price adjustment. We will tender the proposed site investigation works under a standard re-measurement contract because the quantity of works involved may vary depending on actual ground conditions. The contract for site investigation works will provide for price adjustment.

12. The Study and the associated site investigation works will not give rise to any recurrent consequences.

## **PUBLIC CONSULTATION**

13. We consulted the Islands District Council on 24 February 2014. Members supported the proposal to conduct the Study and urged the government to fast-track the implementation as far as practicable.

14. We consulted the Legislative Council Panel on Development on 25 March 2014 and members generally supported the Study. Members also requested the Administration to provide information about the coverage of the planning and architectural study, in particular, whether the Study would provide an analysis on the future economic development trend in western PRD and the volume of passenger flow on the HKBCF island to be generated from the western PRD region. The requested information is at Annex C.

## **ENVIRONMENTAL IMPLICATIONS**

15. Depending on the final scale and scope of the development proposals, the Study and the recommended supporting infrastructures may be classified as designated projects (DPs) under Schedules 3 and 2 of the EIA Ordinance (EIAO) (Chapter 499) respectively. If affirmative, an EIA will be conducted in compliance with the requirements stipulated in the EIAO, the Technical Memorandum on the EIA Process and the EIA Study Brief. An environmental permit will be obtained prior to the construction and operation of the Schedule 2 DPs, if any.

16. The Study and the associated site investigation works will only generate very little construction wastes. We will require the consultants to fully consider measures to minimise the generation of construction waste and to reuse/recycle construction waste as much as possible in the future implementation of the construction projects.

## HERITAGE IMPLICATIONS

17. The Study and the associated site investigation works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

## LAND ACQUISITION

18. The Study and the associated site investigation works will not require any land acquisition.

## BACKGROUND

19. We upgraded **770CL** to Category B in September 2013.

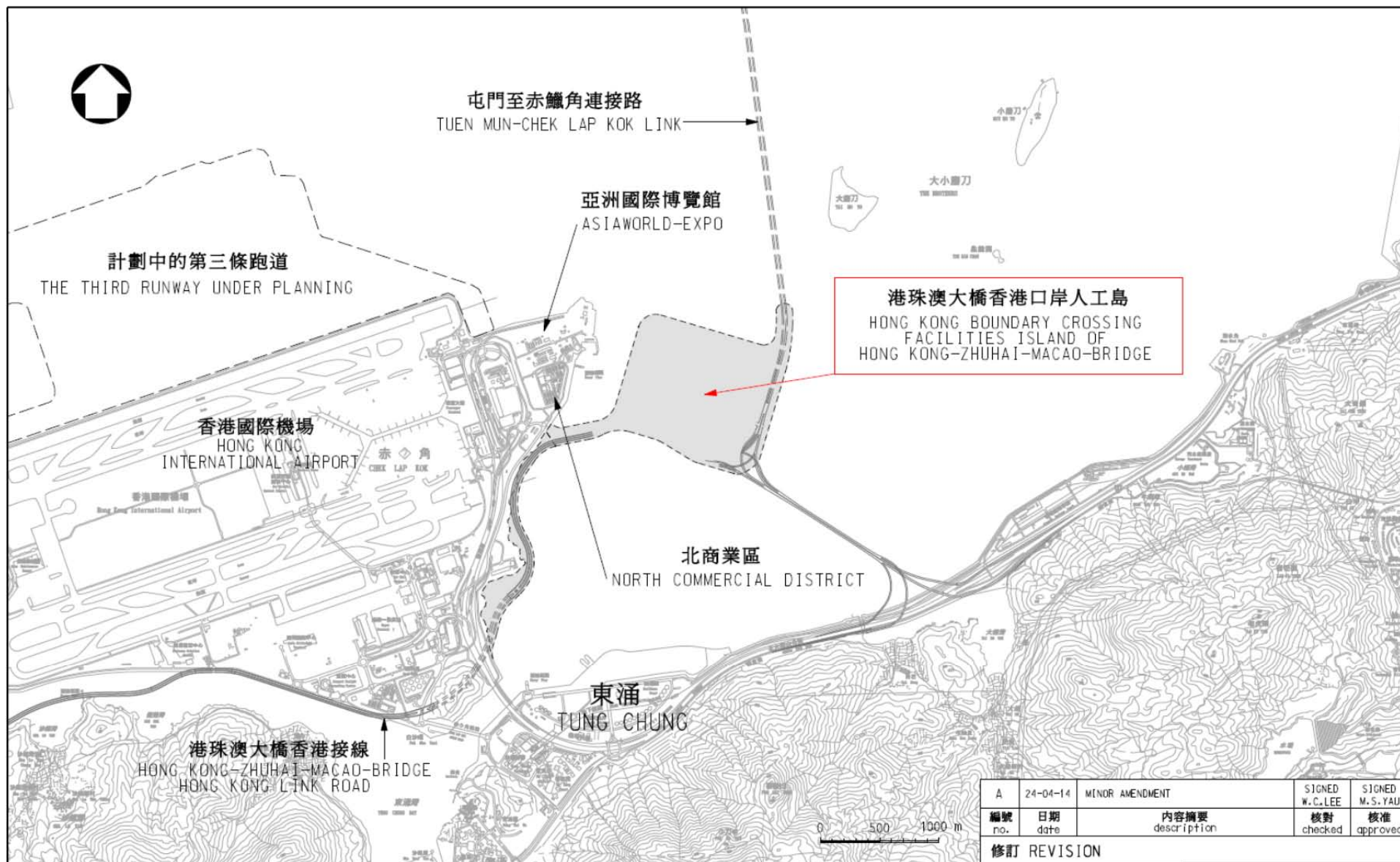
20. On 18 June 2014, PWSC recommended that **770CL** be upgraded to Category A at an estimated cost of \$61.9 million in MOD prices to engage consultants to undertake the Study and the associated site investigation works for the proposed commercial development at the HKBCF island vide PWSC(2014-15)10. In view of the suggestion of some PWSC Members, we proposed to expand the scope of the Study to study the development of other economic activities in addition to commercial development vide FCR(2014-15)46 for FC's consideration on 11 July 2014. Unfortunately, the proposal has been deferred beyond the summer recess.

21. The Study and the associated site investigation works will not involve any tree removal or planting proposals.

22. We estimate that the Study and the associated site investigation works will create about 37 jobs (four for labourers and another 33 for professional/technical staff), providing a total employment of 775 man-months.

770CL - Planning, engineering and architectural study for topside development at HKBCF island of HZMB

770CL - 港珠澳大橋香港口岸上蓋發展的規劃、工程及建築研究



圖則名稱 drawing title		繪圖 drawn		簽署 initial		日期 date		項目編號 item no.		辦事處 office	
港珠澳大橋香港口岸上蓋發展的規劃、工程及建築研究 - 位置圖 PLANNING, ENGINEERING AND ARCHITECTURAL STUDY FOR TOPSIDE DEVELOPMENT AT HONG KONG BOUNDARY CROSSING FACILITIES ISLAND OF HONG KONG-ZHUHAI-MACAO BRIDGE - LOCATION PLAN		S.H.CHENG		SIGNED		12-03-14		770CL		港島及離島拓展處 HONG KONG ISLAND AND ISLANDS DEVELOPMENT OFFICE	
		核對 checked		簽署 initial		日期 date		比例 scale		 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	
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A	24-04-14	MINOR AMENDMENT	SIGNED W.C.LEE	SIGNED M.S.YAU

修訂 REVISION

**770CL – Planning, engineering and architectural study for topside development at Hong Kong boundary crossing facilities island of Hong Kong–Zhuhai–Macao Bridge**

**Breakdown of the estimates for consultants' fees (in September 2014 prices)**

<b>Consultants' staff costs</b> (Note 1)		<b>Estimated man-months</b>	<b>Average MPS* salary point</b>	<b>Multiplier</b> (Note 2)	<b>Estimated fee</b> (\$ million)
(i)	Planning and architectural study	Professional	38	2.0	5.4
		Technical	105	2.0	5.1
(ii)	Engineering study	Professional	60	2.0	8.6
		Technical	196	2.0	9.6
(iii)	Environmental impact assessment study	Professional	26	2.0	3.7
		Technical	140	2.0	6.8
(iv)	Financial viability study	Professional	12	2.0	1.7
		Technical	9	2.0	0.4
(v)	Supervision of site investigation works	Professional	3	2.0	0.4
		Technical	9	2.0	0.4
				<b>Total</b>	<b>42.1</b>

\* MPS = Master Pay Scale

**Notes**

- The actual man-months and fees will only be known after we have selected the consultants through the usual competitive fee bidding system.
- A multiplier of 2.0 is applied to the average MPS salary point to estimate the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. (Subject to approval of the Finance Committee, MPS point 38 = \$71,385 per month and MPS point 14 = \$24,380 per month.)

### The scope of the planning, engineering and architectural study

The scope of the planning, engineering and architectural study includes the following –

- (a) a market demand assessment to predict the demand of different types of commercial development and the development of other economic activities, both from the local and overseas markets including the western Pearl River Delta (PRD);
- (b) exploration and optimization of the utilisation of topside and underground space land on the Hong Kong boundary crossing facilities (HKBCF) island for commercial developments and the development of other economic activities;
- (c) recommendation of an overall concept plan for the proposed commercial developments and the development of other economic activities, appropriate development parameters, market positioning and operation strategy for the proposed commercial developments and the development of other economic activities;
- (d) ascertaining the technical feasibility of the proposal in terms of traffic (including cross-boundary traffic from western PRD), infrastructural capacities, architectural, urban design, landscape, environment, air ventilation, pedestrian circulation, customs, immigration, quarantine clearance and boundary security issues etc., while maintaining the daily operation of the HKBCF during construction; and
- (e) assessment of the financial viability of the proposed commercial developments and the development of other economic activities.

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