

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 – HIGHWAYS

Transport – Roads

579TH – Central-Wan Chai Bypass and Island Eastern Corridor Link

Members are invited to recommend to Finance Committee to increase the approved project estimate for **579TH** by \$7,934.3 million from \$28,104.6 million to \$36,038.9 million in money-of-the-day prices.

PROBLEM

The approved project estimate (APE) of **579TH** is not sufficient to cover the cost of works under the project.

PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport and Housing, proposes to increase the APE for **579TH** by \$7,934.3 million from \$28,104.6 million to \$36,038.9 million in money-of-the-day (MOD) prices.

PROJECT SCOPE AND NATURE

3. In July 2009, the Finance Committee (FC) of the Legislative Council approved the upgrading of **579TH** to Category A at an estimated cost of \$28,104.6 million in MOD prices. The approved scope of works under **579TH** comprises –

/ (a)

- (a) construction of a dual three-lane road tunnel of about 3.7 kilometres (km) long between the Rumsey Street Flyover in Central and the Island Eastern Corridor (IEC) in North Point;
- (b) construction of the approach roads to the proposed road tunnel west portal and the associated slip roads in Central, Wan Chai and Causeway Bay of about 3 km in total length;
- (c) modification of Rumsey Street Flyover westbound up ramp, demolition of Rumsey Street Flyover eastbound down ramp and widening of the Rumsey Street Flyover Extension of about 200 metres (m) long;
- (d) modification of a section of IEC of about 800 m long between Hing Fat Street and Po Leung Kuk Yu Lee Mo Fan Memorial School and an up ramp from Hing Fat Street to IEC eastbound;
- (e) installation of the following noise mitigation facilities:
 - (i) vertical noise barriers of about 350 m long and 3.5 m high and cantilevered noise barriers of about 230 m long and 5.5 m high with 1 to 3 m cantilever along sections of the proposed slip road leading to the IEC eastbound; and
 - (ii) noise semi-enclosures of about 730 m long and 10 m high along both bounds of the IEC and a section of the proposed slip road branching out from the IEC westbound;
- (f) installation of a traffic control and surveillance system (TCSS);
- (g) reprovisioning of the Whitfield Depot, the affected facilities within Victoria Park and the affected mooring facilities in the Causeway Bay Typhoon Shelter (CBTS);
- (h) associated electrical and mechanical (E&M), drainage, landscaping and slope works, and works on junction modification, modification of the bus terminus at Central Ferry Pier, buildings and ventilation structures; and

/ (i)

- (i) implementation of an environmental monitoring and audit (EM&A) programme for the works mentioned in items 3(a) to 3(h) above.

Plans showing the works are at Enclosure 1.

4. Highways Department commenced the construction works in 2009 with a part entrusted to the Civil Engineering and Development Department for construction under the Central Reclamation III (CRIII) and the Wan Chai Development Phase II (WDII) projects. The whole **579TH** is implemented under 13 works contracts, details of which are shown at Enclosure 2. We have so far awarded 12 works contracts mainly on reclamation, tunnels, and viaducts construction.

5. Up till now, we have completed four works contracts including the tunnel structure under the CRIII project, the re-mooring works at CBTS, the reprovisioning of the Whitfield Depot and the reclamation in North Point. The rest of the works are in full swing. Works in the approach roads and the tunnel west portal in Central are gradually taking shape while the modification of the IEC and the associated works in North Point are also in active progress. As for the tunnel construction, some 40% of the tunnel structure in the permanent reclamation formed under WDII has been completed and about 35% of the tunnel structure employing temporary reclamation method at the CBTS and the ex-Public Cargo Working Area sections has also been built. On the whole, the construction works are progressing satisfactorily in general. Subject to the approval of FC on this funding application, we will award the last works contract as soon as possible with a view to commissioning the Central-Wan Chai Bypass and Island Eastern Corridor Link in 2017.

JUSTIFICATIONS

6. Following a detailed review of the financial situation, we consider it necessary to increase the APE for **579TH** by \$7,934.3 million from \$28,104.6 million to \$36,038.9 million in MOD prices to cover the additional costs mainly arising from the following –

- (i) higher-than-expected cost for the tunnel construction works; and
- (ii) increase in provision for price adjustment.

Details of the increases in APE are elaborated in paragraphs 7 to 16 below.

Higher-than-expected Cost for the Tunnel Construction Works

7. The works under **579TH** involves, among other things, the construction of 3.7 km of tunnel which is principally supported on diaphragm walls and barrette piles founded on bedrock. The cost for diaphragm walls and barrette piles in the tunnel construction works has increased by \$975.3 million, which is higher than the original estimate (\$5,643.2 million) by 17%. According to our analysis, the higher-than-expected construction cost for this portion of works is principally due to the higher-than-expected bill rates in the concerned works contracts. When we made funding application to LegCo in 2009, we estimated the cost for diaphragm walls and barrette piles based on the difficulties and complexity of the works, the envisaged construction method and working sequence to be adopted by the contractors with due reference to the market condition and prices in early 2009. As **579TH** is a mega scale project, the diaphragm walls and barrette piles need to be constructed under various works contracts tendered at different stages. As the tenderers estimated their bill rates based on the prevailing market condition, therefore the final bill rates are higher than what we estimated.

8. Besides, the increase in the cost for tunnel construction works is partly due to the fact that the actual depth of diaphragm walls and barrette piles are greater than what was estimated during design stage. When the project estimate for **579TH** was prepared in 2009, the depth of diaphragm walls and barrette piles for the tunnel was estimated based on the site investigation information available then. The site investigation works were carried out using sampling techniques in accordance with general design practices. However, as the route of part of the main tunnel and its slip roads would lie across busy roads, navigation channels, piers, typhoon shelters, etc., these had restricted the extent of the site investigation works that could be conducted at the design stage. As revealed from the actual ground conditions encountered during the construction stage of diaphragm wall and barrette pile, the bedrock profile varied significantly at some locations as compared with those envisaged at design stage. Generally speaking, the bedrock levels were deeper-than-expected, especially for the tunnel section in CBTS, resulting in deeper diaphragm walls and barrette piles required.

Increase in Provision for Price Adjustment

9. According to existing Government practice, the monthly payments to contractors for most construction contracts are adjusted to cover market fluctuation in labour and material costs, and are known as Contract Price Fluctuation payments. Same as other public works projects, provision for price adjustment was earmarked for **579TH** under the established mechanism. A provision of \$3,532.4 million for price adjustment was allowed when FC's funding approval for APE of **579TH** was sought in July 2009. The increase/decrease in future costs was estimated based on the Government's

assumption on the trend rate of change in the prices for public sector building and construction output in March 2009 and the anticipated cash flow of the project.

10. According to the projections of 2009, the prices for public sector building and construction output were assumed to increase by 2% per annum on average in the period from 2009 to 2013 and by 3% per annum from 2014 to 2019. Buffeted by the global financial tsunami and the resulting recession, the local economy fluctuated considerably in 2008 and 2009. Year-on-year economic contraction was recorded for four consecutive quarters from Q4 of 2008 to Q3 of 2009. The year-on-year inflation rate in the period from July to November of 2009 as indicated by the underlying consumer price index plummeted to -0.3% from its peak of 6.3% in July/August 2008. As regards prices in the construction sector, various tender price indexes dropped in 2009, with some seeing even double-digit year-on-year decreases. The prices of many construction materials were also dragged down by the falling global commodity prices.

11. In subsequent years, however, following the successive introduction and long-term implementation of super-loose monetary policies by major economies after the financial tsunami to sustain their aggregate demands, there were rebounds in the global commodity prices in 2010 and 2011. Locally, the increase in the prices of construction materials was notable. Meanwhile, with the increase of construction output in Hong Kong, the supply and demand in the relevant labour markets became tight and wages went up. As a whole, year-on-year increase in the prices for public sector building and construction output was 2.9%, 5.9% and 6.3% in 2010, 2011 and 2012 respectively. The Government has also made gradual upward adjustments to the assumed figures of the prices for public sector building and construction output after 2009. The latest assumption (as at September 2013) is that the prices for public sector building and construction output will rise by 6% per annum from 2013 to 2017, and by 5% per annum from 2018 to 2023. All these actual and forecast factors are higher than the assumptions in March 2009.

12. Moreover, there is difference between the original and current cash flow of the project to take account of the actual tender schedule of various works contract, works procedures adopted by the contractors, as well as the current works progress of the project as of now. Such change in cash flow would increase the need for provision for price adjustment. In consideration of the above two reasons, and based on the latest assumption for price adjustment factors and the latest estimated cash flow, the provision for price adjustment will increase by \$6,959.0 million (i.e. from \$3,532.4 million to \$10,491.4 million). The latest cash flow of the project and the detailed assessment of the latest provision for price adjustment is at Enclosure 3.

Review of Contingencies

13. Apart from the increases mentioned in paragraphs 7 to 12 above, there are also minor changes in cost estimate in other works items when compared with the APE. The works items with increase in estimate include the tunnel E&M works, the building and ventilation structures, etc. On the other hand, the estimates for noise mitigation facilities and traffic control and surveillance system are less than those in the APE. These result in a net increase in cost of \$725.3 million as detailed below –

- (a) the revised estimate for the marine works and tunnel structures under the tunnel construction works increases from \$7,388.6 million to \$7,433.3 million. The \$44.7 million (0.6%) increase is due to the slight differences between the prices in the awarded tenders and the sums allowed in the APE for these items;
- (b) the revised estimate for the earthworks under the tunnel construction works increases from \$2,230.7 million to \$2,296.0 million. The \$65.3 million (2.9%) increase is due to the more extensive temporary support works required during excavation for the construction of the tunnel structures;
- (c) the revised estimate for the tunnel E&M works and building and ventilation structures increases from \$2,180.2 million by \$700 million to \$2,880.2 million (32.1%). The variation is due to the additional installation in the air purification system (APS) to remove nitrogen dioxide from the tunnel exhaust in response to public views for better quality of exhaust air from tunnels; and
- (d) the revised estimate for the roads and drains, elevated structures and foundations, retaining walls and slope works, noise mitigation facilities, reprovisioning of affected facilities, landscaping works, and TCSS is reduced from \$3,339.8 million by \$84.7 million (2.5%) to \$3,255.1 million. The variation is due to the slight differences between the prices in the awarded tenders and the sums allowed in the APE for these items.

A comparison of the cost breakdown of the original APE and the revised project estimate is at Enclosure 4.

14. We have reviewed in detail and considered there is scope to reduce the contingencies under the original APE by \$725.3 million to cover the increase in cost mentioned in paragraph 13 above.

15. For the remaining \$1,434.4 million of project contingency, as there remains considerable amount of marine works and underground works of high risk nature to be completed before the commissioning in 2017, we need to retain such amount to cover any possible additional expenditures arising from works variations to suit actual site conditions (and the subsequent increase in cost) or claims for additional payments from the contractors. We would expose ourselves to unacceptable budget risk if we reduce the contingency level further. Therefore, we do not recommend using those project contingency to cope with the adjustment in cost mentioned in paragraphs 7 to 12 above.

16. Overall, a breakdown of the proposed increase of \$7,934.3 million is as follows –

Factors	Proposed increased amount in MOD prices (\$million)	% of the increased amount
Increase due to -		
(a) Increase in cost for the tunnel construction works – diaphragm walls and foundations	975.3	11.2
(b) Increase in provision for price adjustment under the original APE ¹	6,959.0	80.4
(c) Increase in cost for other works items	725.3	8.4
(d) Total increase (d)=(a)+(b)+(c)	8,659.6	100.0
Partly Offset by -		
(e) Drawdown from Contingencies	(725.3)	100.0
(f) Proposed Increase (f)=(d)-(e)	7,934.3	

/FINANCIAL

¹ The increase in the provision of price adjustment is based on the latest assumption for price adjustment factors announced by the Government and the latest cash flow of the project. These two main reasons are detailed in paragraphs 9 to 12.

FINANCIAL IMPLICATIONS

17. Subject to approval, we will revise the phased expenditure as follows –

Year	\$ million (in MOD prices)
Up to 31 March 2013	7,135.6
2013-2014	3,547.9
2014-2015	4,189.0
2015-2016	5,100.4
2016-2017	5,224.6
2017-2018	4,553.6
2018-2019	3,647.4
2019-2020	1,603.4
2020-2021	1,037.0
	<hr/>
	36,038.9
	<hr/>

18. The proposed increase in the APE will not give rise to any additional recurrent expenditure.

PUBLIC CONSULTATION

19. During the course of construction, Highways Department has maintained close contact with the Central and Western District Council, Wan Chai District Council, Eastern District Council and Islands District Council as well as the local communities to report the works progress, the associated temporary traffic arrangements and the temporary vessel relocation arrangements in CBTS from time to time. In addition, to enhance communication with the public, two community liaison centres have been set up in Central and North Point respectively to receive visitors and local residents who are interested in the project and to answer their enquiries in relation to the project. We also issue newsletters on a regular basis to update the members of District Councils, local residents and stakeholders on the works progress. Also, we have set up a project website and hotline to facilitate the public to offer comments and suggestions. We also consulted the Legislative Council Panel on Transport on the proposed increase in APE on 15 November 2013. The Panel agreed to the submission of the funding proposal to PWSC by the Administration. The supplementary information requested by the Panel members will be submitted separately.

ENVIRONMENTAL IMPLICATIONS

20. The proposed increase in the APE will not have any environmental implications.

HERITAGE IMPLICATIONS

21. The proposed increase in the APE will not affect any heritage sites, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interests and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

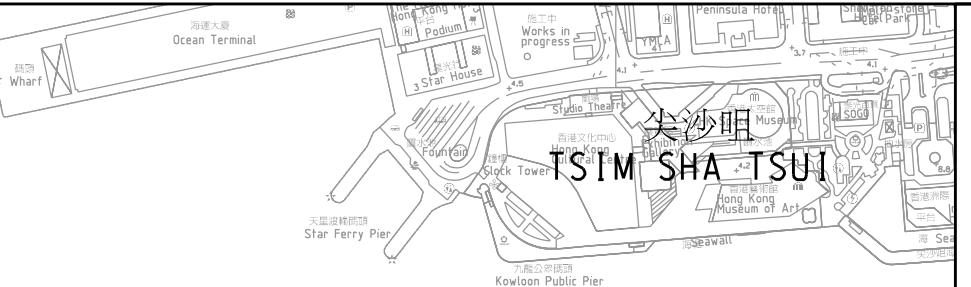
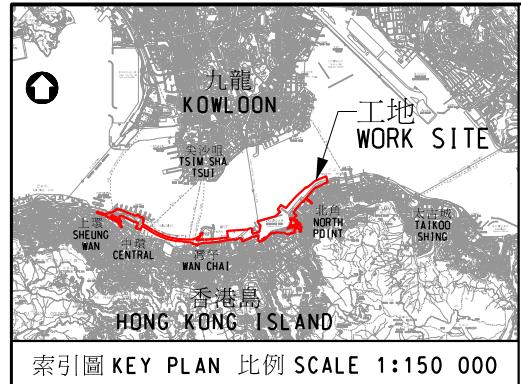
22. The proposed increase in the APE will not require any land acquisition.

BACKGROUND INFORMATION

23. In July 2009, we upgraded **579TH** to Category A at an estimated cost of \$28,104.6 million in MOD prices. The construction works commenced in July 2009 and the Central-Wan Chai Bypass and Island Eastern Corridor Link are targeted for commissioning by 2017.

24. The proposed increase in the APE will not involve any additional tree removal and planting proposal.

25. The proposed increase in the APE will not involve the creation of any additional professional and technical posts or job opportunities.



圖例: LEGEND:	
	施工區界限 LIMIT OF WORKS AREA
	擬建主幹道隧道 PROPOSED TRUNK ROAD TUNNEL
	擬建高架結構 PROPOSED ELEVATED STRUCTURE
	行車線數目 NO. OF TRAFFIC LANE
	擬建地面道路 PROPOSED GROUND LEVEL ROAD
	擬修改道路 / 交界處 PROPOSED ROAD / JUNCTION MODIFICATION
	擬建通風大樓 PROPOSED VENTILATION BUILDING
	將予拆卸的現有高架結構 EXISTING ELEVATED STRUCTURE TO BE DEMOLISHED

維多利亞港 VICTORIA HARBOUR



圖則名稱 plan title

工務計劃項目第 579TH 號 - 中環及灣仔繞道和東區走廊連接路
- 平面圖

PWP ITEM NO. 579TH - CENTRAL-WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK
- LAYOUT PLAN

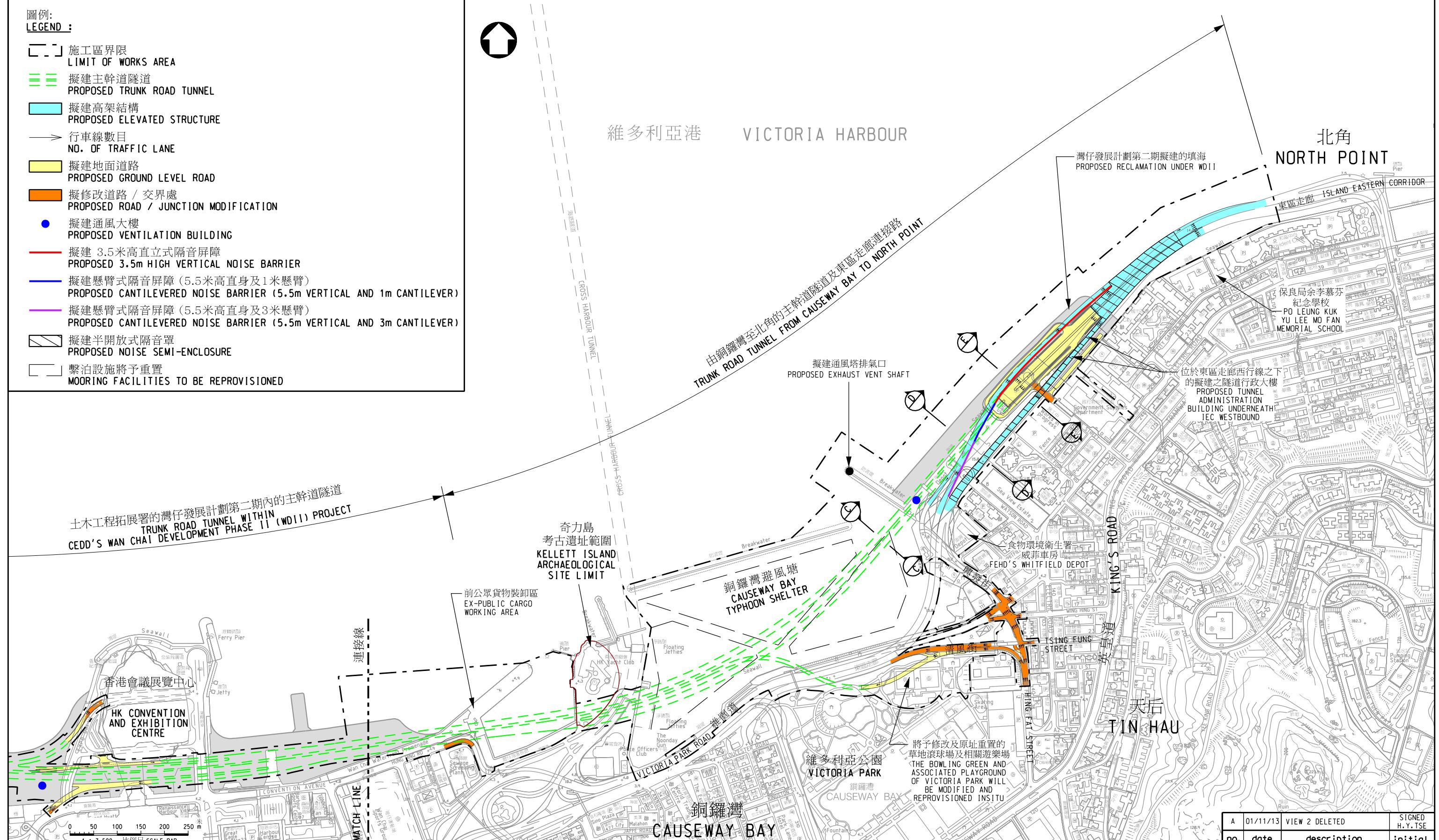
設計 designed S.C.POON	SIGNED 18/05/09	繪圖 drawn W.L.LAM	SIGNED 18/05/09
覆核 checked S.M.WONG	SIGNED 18/05/09	批准 approved S.MO	SIGNED 18/05/09
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE			

圖則編號 plan no. HMW6579TH-SP0004-A	比例 scale 1:7500
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HIGHWAYS DEPARTMENT HONG KONG	路政署

圖例:
LEGEND:

- 施工區界限
LIMIT OF WORKS AREA
- 擬建主幹道隧道
PROPOSED TRUNK ROAD TUNNEL
- 擬建高架結構
PROPOSED ELEVATED STRUCTURE
- 行車線數目
NO. OF TRAFFIC LANE
- 擬建地面道路
PROPOSED GROUND LEVEL ROAD
- 擬修改道路 / 交界處
PROPOSED ROAD / JUNCTION MODIFICATION
- 擬建通風大樓
PROPOSED VENTILATION BUILDING
- 擬建 3.5米高直立式隔音屏障
PROPOSED 3.5m HIGH VERTICAL NOISE BARRIER
- 擬建懸臂式隔音屏障 (5.5米高直身及1米懸臂)
PROPOSED CANTILEVERED NOISE BARRIER (5.5m VERTICAL AND 1m CANTILEVER)
- 擬建懸臂式隔音屏障 (5.5米高直身及3米懸臂)
PROPOSED CANTILEVERED NOISE BARRIER (5.5m VERTICAL AND 3m CANTILEVER)
- 擬建半開放式隔音罩
PROPOSED NOISE SEMI-ENCLOSURE
- 繫泊設施將予重置
MOORING FACILITIES TO BE REPROVISIONED

土木工程拓展署的灣仔發展計劃第二期內的主幹道隧道
CEDD'S WAN CHAI DEVELOPMENT PHASE II (WDII) PROJECT



圖則名稱 plan title

工務計劃項目第 579TH 號 - 中環及灣仔繞道和東區走廊連接路

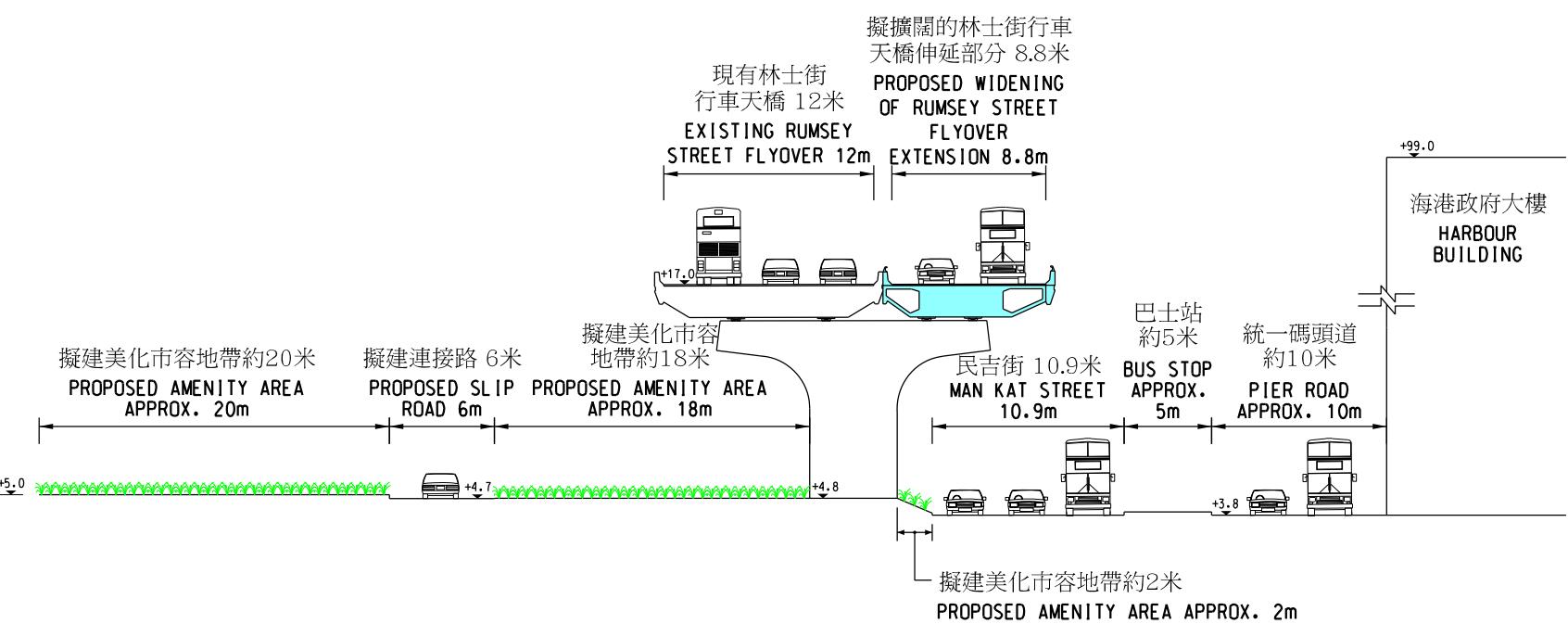
- 平面圖

PWP ITEM NO. 579TH - CENTRAL-WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK
- LAYOUT PLAN

設計 designed S.C.POON	SIGNED 18/05/09	繪圖 drawn W.L.LAM	SIGNED 18/05/09
覆核 checked S.M.WONG	SIGNED 18/05/09	批准 approved S.MO	SIGNED 18/05/09
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE			
HIGWAYS DEPARTMENT HONG KONG			路政署

註釋 NOTES:

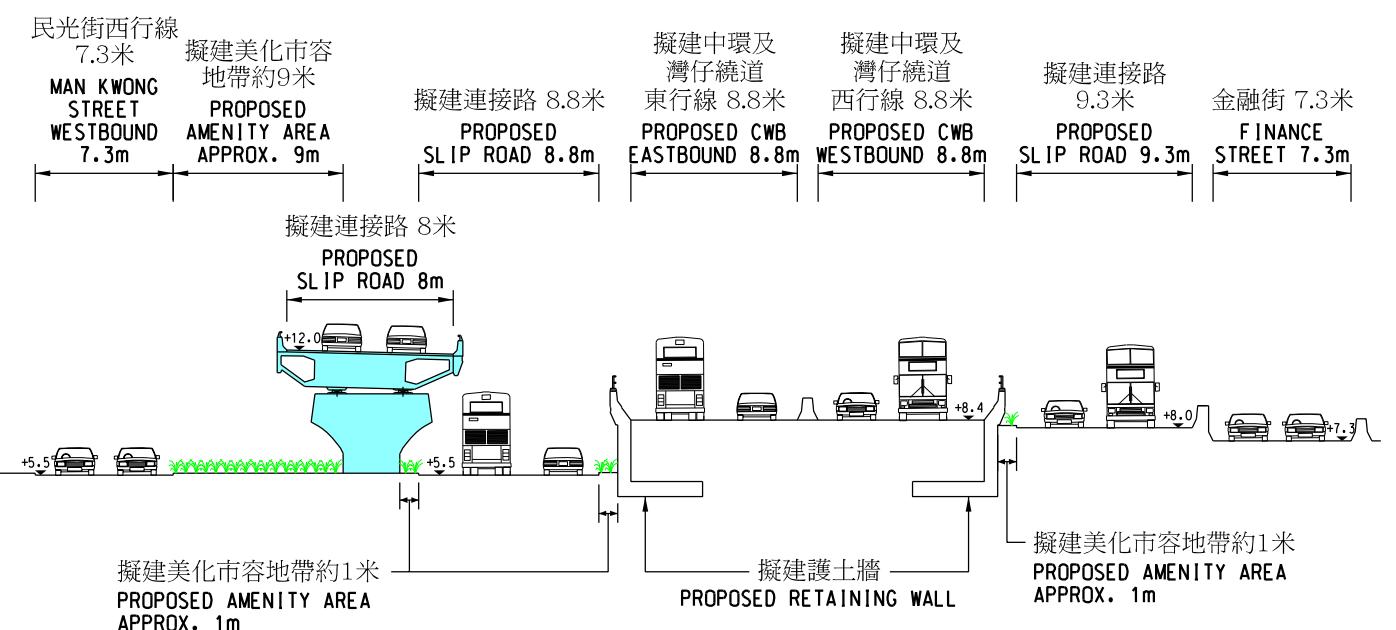
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ALL LEVELS ARE IN METRES ABOVE HONG KONG PRINCIPAL DATUM
- CWB 表示中環及灣仔繞道
CWB STANDS FOR CENTRAL-WAN CHAI BYPASS
- IEC 表示東區走廊
IEC STANDS FOR ISLAND EASTERN CORRIDOR
- 所有切面圖只作闡述一般設計佈局之用，設計或會因實際情況而作出修改
ALL CROSS SECTIONS ARE FOR GENERAL ILLUSTRATION OF DESIGN LAYOUT ONLY AND MAY BE SUBJECT TO CHANGE TO SUIT SITE CONDITIONS



圖例
LEGEND:

擬建美化市容地帶 PROPOSED AMENITY AREA

切面 SECTION A-A



切面 SECTION B-B

A	01/11/13	NOTES REVISED	SIGNED
no.	date	description	initial
圖則名稱 plan title			圖則編號 plan no. 比例 scale
工務計劃項目第 579TH 號 - 中環及灣仔繞道和東區走廊連接路			HMW6579TH-SP0006-A 1:400
- 切面圖			© 版權所有 COPYRIGHT RESERVED
PWP ITEM NO. 579TH - CENTRAL-WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK			HIGHWAYS DEPARTMENT 香港政署
- CROSS SECTION			HONG KONG

圖則名稱 plan title
工務計劃項目第 579TH 號 - 中環及灣仔繞道和東區走廊連接路
- 切面圖
PWP ITEM NO. 579TH - CENTRAL-WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK
- CROSS SECTION

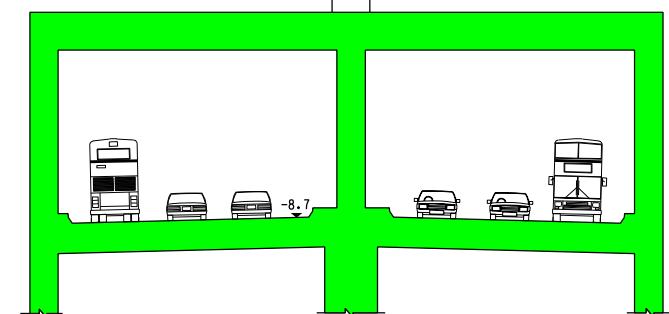
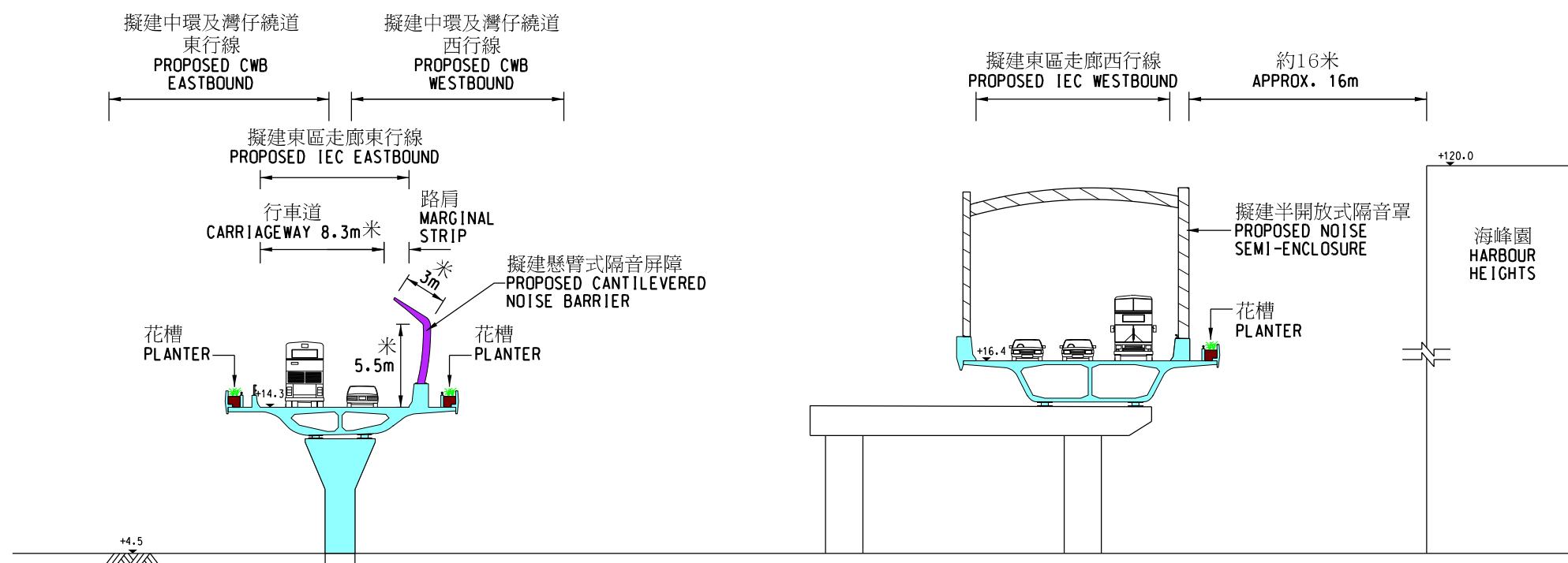
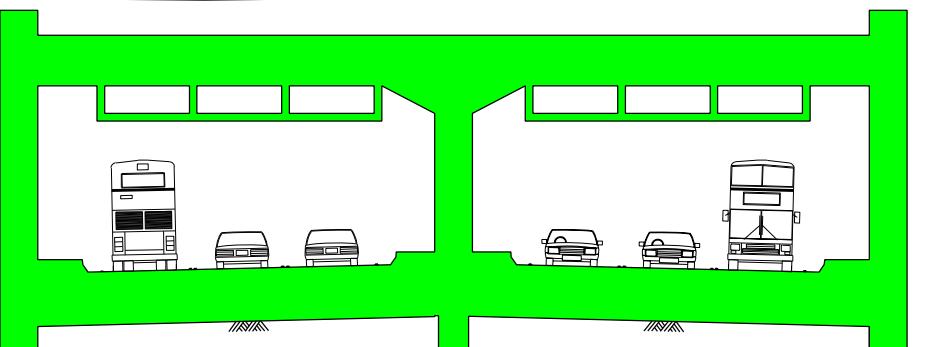
註釋 NOTES:

1. 所有水平均以米為單位並在香港主水平基準上
ALL LEVELS ARE IN METRES ABOVE HONG KONG PRINCIPAL DATUM

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CWB STANDS FOR CENTRAL-WAN CHAI BYPASS

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IEC STANDS FOR ISLAND EASTERN CORRIDOR

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圖則名稱 plan title
工務計劃項目第 579TH 號 - 中環及灣仔繞道和東區走廊連接路
- 切面圖

PWP ITEM NO. 579TH - CENTRAL-WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK
- CROSS SECTION

設計 designed S.C.POON	SIGNED 18/05/09	繪圖 drawn W.L.LAM	SIGNED 18/05/09
覆核 checked S.M.WONG	SIGNED 18/05/09	批准 approved S.MO	SIGNED 18/05/09
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE			路政署 HIGHWAYS DEPARTMENT HONG KONG

A 01/11/13 NOTES REVISED SIGNED
H.Y.TSE

no. date description initial

圖則編號 plan no. 比例 scale
HMW6579TH-SP0007-A AS SHOWN

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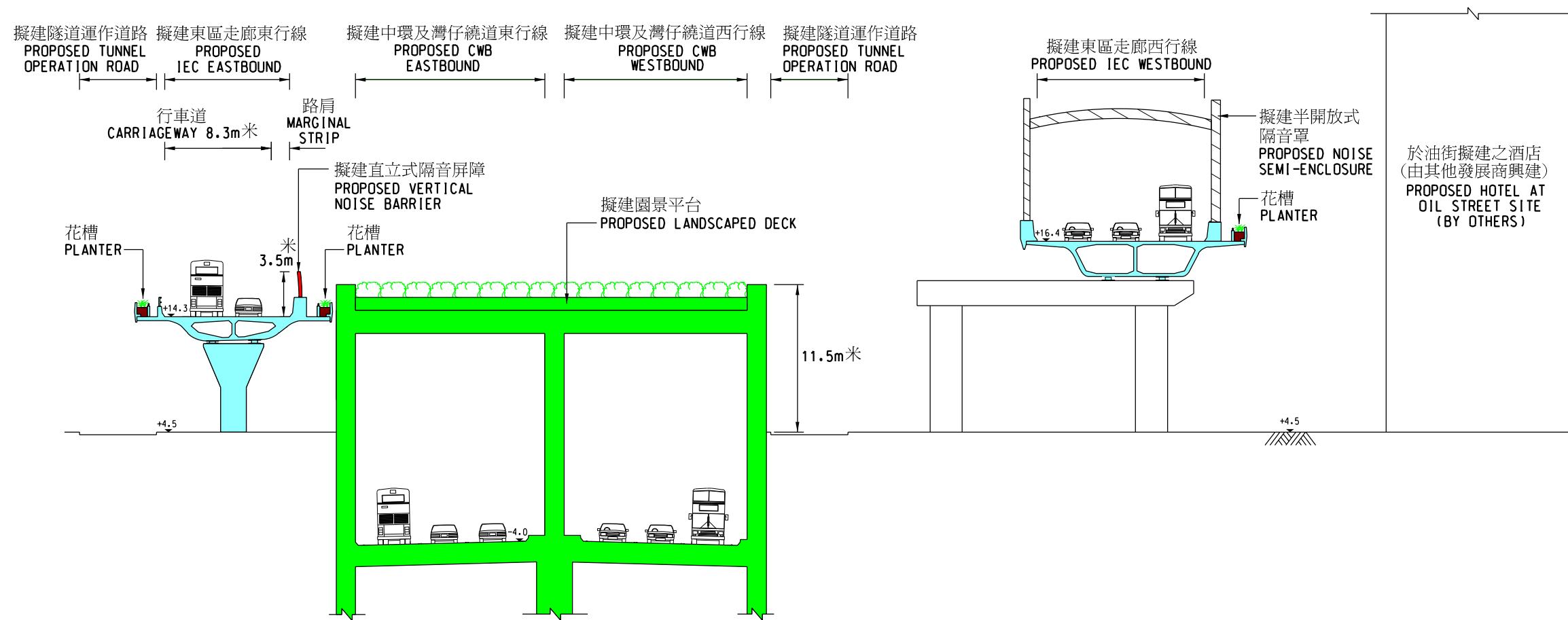
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註釋 NOTES:

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圖例
LEGEND:

 擬建園景平台
PROPOSED LANDSCAPED DECK



切面 SECTION E-E

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no.	date	description	initial

圖則名稱 plan title
工務計劃項目第 579TH 號 - 中環及灣仔繞道和東區走廊連接路
- 切面圖
PWP ITEM NO. 579TH - CENTRAL-WAN CHAI BYPASS AND ISLAND EASTERN CORRIDOR LINK
- CROSS SECTION

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圖則編號 plan no.
HMW6579TH-SP0008-A

比例 scale
1:400

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HIGHWAYS
DEPARTMENT
HONG KONG

List of works contracts implemented under 579TH

Contract No.	Title	Contract Award Date	Status
Under Highways Department			
HY/2009/11	Central-Wan Chai Bypass – North Point Reclamation	December 2009	Completed
HY/2009/16	Central-Wan Chai Bypass – Provision and Laying of Private Moorings	December 2009	Completed
HY/2009/17	Central-Wan Chai Bypass – FEHD Whitfield Depot Reprovisioning Works	February 2010	Completed
HY/2009/15	Central-Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)	September 2010	In progress
HY/2009/18	Central-Wan Chai Bypass – Central Interchange	September 2010	In progress
HY/2009/19	Central-Wan Chai Bypass – Tunnel (North Point Section) and Island Eastern Corridor Link	January 2011	In progress
HY/2010/08	Central-Wan Chai Bypass – Tunnel (Slip Road 8 Section)	March 2013	In progress
HY/2011/08	Central-Wan Chai Bypass – Tunnel buildings, systems and fittings, and works associated with tunnel commissioning	February 2014	To be awarded
Under Civil Engineering and Development Department through entrustment			
HK12/02	Central Reclamation Phase III – Engineering Works	February 2003	Completed
HK/2009/01	Wan Chai Development Phase II –Central-Wan Chai Bypass at Hong Kong Convention and Exhibition Centre	December 2009	In progress
HK/2009/02	Wan Chai Development Phase II –Central-Wan Chai Bypass at Wan Chai East	January 2010	In progress
HK/2010/06	Wan Chai Development Phase II –Central-Wan Chai Bypass over MTR Tsuen Wan Line	January 2011	In progress
HK/2012/08	Wan Chai Development Phase II –Central-Wan Chai Bypass at Wan Chai West	January 2013	In progress

579TH – Central-Wan Chai Bypass and Island Eastern Corridor Link

Table 1 – Cash flow and provision for price adjustment in PWSC(2009-10)52

Year	Original project estimate (\$ million, in September 2008 prices) X	Original price adjustment factors (March 2009) # Y	Approved project estimate (\$ million, in MOD prices) Z	Provision for price adjustment (\$million) A = Z - X
2009 - 2010	232.8	1.03500	240.9	8.1
2010 - 2011	1,553.6	1.05570	1,640.1	86.5
2011 - 2012	3,209.8	1.07681	3,456.3	246.5
2012 - 2013	3,888.3	1.09835	4,270.7	382.4
2013 - 2014	4,314.0	1.12032	4,833.1	519.1
2014 - 2015	3,296.3	1.15113	3,794.5	498.2
2015 - 2016	3,357.9	1.18566	3,981.3	623.4
2016 - 2017	2,302.4	1.22123	2,811.8	509.4
2017 - 2018	1,478.5	1.25787	1,859.8	381.3
2018 - 2019	938.6	1.29560	1,216.1	277.5
Total	24,572.2		28,104.6	3,532.4

Note:

- # Price adjustment factors adopted in March 2009 were based on the projected movement of prices for public sector building and construction output at that time, which were assumed to increase by 2.0% per annum over the period from 2009 to 2013 and by 3.0% per annum from 2014 to 2019.

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Table 2 – Revised cash flow and provision for price adjustment for 579TH

Year	Latest PE (\$ million, in September 2008 prices)	Latest PE (\$ million, in September 2013 prices) ^{^^}	Latest price adjustment factors (September 2013) ##	Latest PE (\$ million, in MOD prices)	Latest provision for price adjustment (\$ million)	Net increase in provision for price adjustment (\$ million)
	a	b	c	d	e	f
Up to March 2013	6,216.2 [^]	7,135.6 [^]	1.00000	7,135.6 [^]	$\mathbf{e = d - a}$	$\mathbf{f = e - A}$
2013 - 2014	2,784.1	3,547.9	1.00000	3,547.9		
2014 - 2015	3,101.1	3,951.9	1.06000	4,189.0		
2015 - 2016	3,562.1	4,539.3	1.12360	5,100.4		
2016 - 2017	3,442.2	4,386.7	1.19102	5,224.6		
2017 - 2018	2,830.4	3,606.9	1.26248	4,553.6		
2018 - 2019	2,154.0	2,745.0	1.32876	3,647.4		
2019 - 2020	901.8	1,149.2	1.39519	1,603.4		
2020 - 2021	555.5	707.9	1.46495	1,037.0		
Total	25,547.5	31,770.4		36,038.9	10,491.4	6,959.0

Notes

- ## Price adjustment factors promulgated in September 2013 were based on the latest movement of prices for public sector building and construction output, which are assumed to increase by 6.0% per annum over the period from 2013 to 2017 and by 5.0% per annum from 2018 to 2023.
- ^ \$6,216.2 million was the actual expenditure excluding price adjustment up to March 2013; whereas \$7,135.6 million was the actual expenditure including price adjustment.
- ^^ The revised project estimate (in September 2008 prices) was multiplied by 1.27435 for conversion to September 2013 prices. The figure of 1.27435 represents the changes in price movement for public sector building and construction output between September 2008 and September 2013.

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Comparison between Approved Project Estimate and the Revised Project Estimate

	(A) Approved Project Estimate (\$ million)	(B) Revised Project Estimate (\$ million)	(B) – (A) Difference (\$ million)
(a) Tunnel construction works	15,262.5	16,347.8	1,085.3
(i) Marine works	983.6	999.5	15.9
(ii) Diaphragm walls and foundations	5,643.2	6,618.5	975.3
(iii) Earthworks	2,230.7	2,296.0	65.3
(iv) Tunnel structures	6,405.0	6,433.8	28.8
(b) Tunnel E&M works	1,543.3	1,933.2	389.9
(i) Tunnel ventilation works	527.0	542.8	15.8
(ii) E&M works	1,016.3	1,390.4	374.1
(c) Roads and drains	109.5	120.4	10.9
(d) Elevated structures and foundations	1,174.5	1,197.0	22.5
(e) Retaining walls and slope works	431.9	450.4	18.5
(f) Building and ventilation structures	636.9	947.0	310.1
(g) Noise mitigation facilities	1,102.6	955.5	(147.1)
(i) Vertical noise barriers	44.6	51.8	7.2
(ii) Cantilevered noise barriers	61.5	74.1	12.6
(iii) Noise semi-enclosures	996.5	829.6	(166.9)
(h) Re-provisioning of affected facilities	234.4	254.0	19.6
(i) Landscaping works	74.4	75.5	1.1
(j) TCSS	212.5	202.3	(10.2)
(k) Tunnel vehicles	54.1	54.1	0.0
(l) Consultants' fees	222.8	222.8	0.0
(i) Contract administration	73.9	73.9	0.0
(ii) Management of resident site staff (RSS)	96.7	96.7	0.0
(iii) EM&A programme	23.2	23.2	0.0
(iv) Electrical and Mechanical Services Trading Fund (EMSTF)	29.0	29.0	0.0
(m) Remuneration of RSS	1,353.1	1,353.1	0.0
(n) Contingencies	2,159.7	1,434.4	(725.3)
(o) Provision for price adjustment	3,532.4	10,491.4	6,959.0
Total	28,104.6	36,038.9	7,934.3

As regards item (a)(i) (**tunnel construction works – marine works**) and item (a)(iv) (**tunnel construction works – tunnel structures**), the variations reflect the difference between the awarded tenders and the Approved Project Estimate (APE) in pricing these items. In comparison with the APE, the awarded tender prices for items (a)(i) and (a)(iv) are \$44.7 million higher than that estimated in the APE.

2. As regards item (a)(ii) (**tunnel construction works – diaphragm walls and foundations**) which is explained in paragraphs 7 and 8 of the main paper, an increase of \$975.3 million is principally due to the higher-than-expected tender rates for the diaphragm wall and barrette pile construction and the unexpected deeper bedrock levels for founding the diaphragm walls and barrette piles for the tunnel structure .

3. As regards item (a) (iii) (**tunnel construction works – earthworks**), an increase of \$65.3 million is due to the more extensive temporary support required during excavation for the construction of the tunnel structures.

4. As regards item (b) (**tunnel E&M works**) and item (f) (**building and ventilation structures**), the total increase of \$700.0 million is due to the additional installation in the air purification system (APS) to remove nitrogen dioxide from the tunnel exhaust in response to public views for better quality of exhaust air from tunnels in the project.

5. As regards item (c) (**roads and drains**), item (d) (**elevated structures and foundations**), item (e) (**retaining walls and slope works**), item (g) (**noise mitigation facilities**), item (h) (**re-provisioning of affected facilities**), item (i) (**landscaping works**), and item (j) (**TCSS**), the variations reflect the difference between the awarded tenders and the APE in pricing these items. In comparison with the APE, the awarded tender prices for items (c), (d), (e), (g), (h), (i) and (j) are \$84.7 million lower than that estimated in the APE.

6. As regards item (n) (**contingencies**), we have drawn \$725.3 million from the contingencies allowed in the APE to cover all the additional costs arising from the works items as explained in the above paragraphs, except the additional cost of \$975.3 million for the diaphragm wall and foundations for the tunnel construction works (i.e. item (a)(ii) above). The remaining sum of \$1,434.4 million has to be retained as contingencies for meeting unexpected expenditures required for completing the remaining works.

7. As regards item (o) (**provision for price adjustment**), an increase of \$6,959.0 million is based on the latest increase in the price adjustment factors promulgated by the Government, as well as the latest anticipated cash flow of the project. Details are given in paragraphs 9 to 12 of the main paper and Enclosure 3.