For discussion
on 1 June 2016

PWSC(2016-17)28

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT
Civil Engineering – Land Development
332CL – West Kowloon Reclamation – main works (remainder)

Members are invited to recommend to the Finance Committee -

(a) the upgrading of part of **332CL**, entitled "West Kowloon Reclamation – main works (remainder) – footbridge at the junction of Sham Mong Road and Tonkin Street West in Sham Shui Po", to Category A at an estimated cost of $368.9 million in money-of-the-day prices; and

(b) the retention of the remainder of **332CL** in Category B.

PROBLEM

We need to enhance the connectivity of new and existing developments, as well as road safety, in the vicinity of the junction of Sham Mong Road and Tonkin Street West in Sham Shui Po.

/PROPOSAL …..

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade part of **332CL** to Category A, at an estimated cost of $368.9 million in money-of-the-day (MOD) prices, for the construction of a footbridge system at the junction of Sham Mong Road and Tonkin Street West in Sham Shui Po.

PROJECT SCOPE AND NATURE

3. The part of **332CL** which we propose to upgrade to Category A (the proposed works) comprises –

(a) a covered four-span footbridge system at the junction of Sham Mong Road and Tonkin Street West, with length of each span ranging from about 46 metres (m) to 67 m (235 m long in total) and the clear width ranging from about 4.0 m to 4.7 m;

(b) six lifts, four covered escalators, two covered staircases and three direct connections linking the proposed footbridge system with future adjacent developments;

(c) associated road works and ancillary works including a temporary covered staircase [1], footpaths, drainage, utilities, electrical and mechanical and landscaping works; and

(d) necessary environmental mitigation measures.

A site plan with elevations and an artist impression of the proposed works are at Enclosure 1.

/4. …..

[1] While the project will be substantially completed in the third quarter of 2019, the direct connection linking the deck floor of the proposed footbridge system with the North West Kowloon Reclamation Area (NWKR) Site 6 development will only be commissioned in 2021. To tie in with the early phase of population intake of the public housing development at NWKR Site 6 starting from 2019, a covered temporary staircase will be provided under the proposed works for an interim period of about two years, which will be removed upon completion of the designated staircase and escalators to be provided for public use within NWKR Site 6.

4. Subject to funding approval of the Financial Committee (FC) within this legislative session, we plan to commence the proposed works in the third quarter of 2016 for substantial completion in the third quarter of 2019. To meet the programme, we plan to invite tender in the second quarter of 2016, but the contract will only be awarded after obtaining FC's funding approval.

5. The remainder of **332CL** covers two other footbridges along Sham Mong Road at its junction with Hing Wah Street West and Yen Chow Street West in Sham Shui Po. We plan to seek upgrading of the remainder of **332CL** at a later stage.

JUSTIFICATION

6. The proposed works seek to enhance the connectivity of new and existing developments in the vicinity of the junction of Sham Mong Road and Tonkin Street West in Sham Shui Po including MTR West Rail Nam Cheong Station. The proposed footbridge system will provide, on the northern side of the road junction, a total of four lifts, four covered escalators and two covered staircases linking up the at-grade footpaths adjoining Fu Cheong Estate and five schools nearby attended by about 5 000 students in total.

7. On the southern side of the road junction, the proposed footbridge system will connect directly with the future public housing development at the NWKR Site 6 and the housing development above the existing Nam Cheong Station. The two housing developments which are currently under construction would provide a total of about 6 700 units accommodating a population of about 20 000 in phases from 2018 to 2021. In addition to the two lifts to be provided under the proposed works next to NWKR Site 6, the proposed footbridge system and the at-grade adjoining public footpaths will be connected round the clock by means of staircases, escalators and/or lifts within these two housing developments. The design capacity of the proposed footbridge system will be able to cope with the estimated peak two-way pedestrian flow of about 7 100 pedestrians per hour per span in 2031.

8. There are strong demands for the early implementation of the proposed footbridge system from the community and nearby schools. In order to enhance road safety and improve junction capacity, the Government will consider whether the existing at-grade pedestrian crossings at the above road junction should be retained after reviewing the situation upon the commissioning of the proposed footbridge system.

/FINANCIAL …..

FINANCIAL IMPLICATIONS

9. We estimate the cost of the proposed works to be $368.9 million in MOD prices (please see paragraph 11 below), broken down as follows -

			$ million	
(a)	Covered footbridge -		215.8	
	(i) main spans and columns	145.0		
	(ii) escalators and staircases	35.3		
	(iii) lift towers and lifts	35.5		
(b)	associated road works and ancillary works		25.9	
(c)	Environmental mitigation measures		3.6	
(d)	Consultants' fees for		4.9	
	(i) contract administration	2.4		
	(ii) management of resident site staff (RSS)	2.5		
(e)	Remuneration of RSS		19.6	
(f)	Contingencies		27.0	
	Sub-total		296.8	(in September 2015 prices)
(g)	Provision for price adjustment		72.1	
	Total		368.9	(in MOD prices)

10. Due to insufficient in-house resources, we propose to engage consultants to undertake contract administration and site supervision of the proposed works. A breakdown of the estimate for consultants' fees and resident site staff costs by man-months is at Enclosure 2.

/11. …..

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

Year	$ million (Sept 2015)	Price adjustment factor	$ million (MOD)
2016 – 2017	6.2	1.05775	6.6
2017 – 2018	50.0	1.12122	56.1
2018 – 2019	105.0	1.18849	124.8
2019 – 2020	61.0	1.25980	76.8
2020 – 2021	27.0	1.33539	36.1
2021 – 2022	25.0	1.40549	35.1
2022 – 2023	22.6	1.47577	33.4
	296.8		368.9

12. We have derived the MOD estimates on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output from 2016 to 2023. Subject to funding approval, we will deliver the works under a re-measurement contract because the quantities of works may vary depending on actual ground conditions. The contract will provide for price adjustment.

13. We estimate the annual recurrent expenditure arising from the proposed works to be about $3.3 million.

PUBLIC CONSULTATION

14. On 4 December 2014, we consulted the Transport Affairs Committee under the Sham Shui Po District Council on the proposed footbridge system. Members generally supported the proposed works.

15. We gazetted the proposed works under the Roads (Works, Use and Compensation) Ordinance (Cap. 370) on 15 January 2016 and no objection was received. The authorisation notice for the proposed works was gazetted on 8 April 2016.

/16. …..

16. We consulted the Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS)[2] on the aesthetic design of the proposed works. The Committee accepted the aesthetic design.

17. We consulted the Legislative Council Panel on Development on the proposed works on 26 April 2016. Members supported the proposed works. Our responses to Members' concerns raised at the meeting are at Enclosure 3.

ENVIRONMENTAL IMPLICATIONS

18. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The project will not cause long-term adverse environmental impact. We have included $3.6 million (in September 2015 prices) in the project estimate under paragraph 9(c) above for implementing suitable mitigation measures to control short-term environmental impacts.

19. During construction, we will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contract. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

20. At the planning and design stages, we have considered the alignment, design level and construction method of the proposed works to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil and rock fill) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities[3]. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste and the use of non-timber formwork to further reduce the generation of construction waste.

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[2] ACABAS comprises representatives of the Hong Kong Institute of Architects, Hong Kong Institute of Engineers, Hong Kong Institute of Planners, academic institutions, Architectural Services Department, Highways Department, Housing Department, and Civil Engineering and Development Department. It is responsible for vetting the design of bridges and other structures associated with the highway system, including noise barriers and enclosures, from the aesthetic and visual impact points of view.

[3] Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

21. At the construction stage, we will require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

22. We estimate that the proposed works will generate in total about 11 180 tonnes of construction waste. Of these, we will reuse about 4 480 tonnes (40%) of inert construction waste on-site and deliver about 6 590 tonnes (59%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining about 110 tonnes (1%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be about $0.2 million for this project (based on a unit charge rate of $27 per tonne for disposal at public fill reception facilities, and $125 per tonne for disposal at landfills as stipulated in the Waste Disposal (Charge for Disposal of Construction Waste) Regulation (Cap. 354N)).

HERITAGE IMPLICATIONS

23. The proposed works will not affect any heritage sites, i.e. all declared monuments, proposed monuments, graded historic sites and buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

TRAFFIC IMPLICATIONS

24. During construction stage, the proposed works will not cause any significant traffic impact. Temporary traffic arrangements will be implemented to facilitate the construction works which require temporary road closure. We will display publicity boards on site giving details of the temporary traffic arrangements, and the anticipated completion dates of individual section of works. In addition, we will set up a telephone hotline to respond to public enquires or complaints.

LAND ACQUISITION

25. The proposed works do not require land acquisition.

BACKGROUND INFORMATION

26. We upgraded **332CL** to Category B in November 1989.

27. In June 1990, FC approved the upgrading of **354CL** "West Kowloon Reclamation – consultants' fees and site investigation" to Category A, with the currently approved project estimate of $287 million for consultants' fees and site investigation of West Kowloon Reclamation. Since June 1990, we have already upgraded 15 separate parts of the project to Category A to provide a total of 340 hectares of land along the West Kowloon waterfront for the West Kowloon Reclamation development and associated supporting infrastructure. We have engaged consultants to carry out the design and site investigation under **354CL**, which have been completed except those for the remaining two footbridges as mentioned in paragraph 5 above.

28. The proposed works will involve the removal of 13 trees including 12 trees to be felled and one tree to be transplanted off-site. All the trees to be removed and transplanted are not important trees[4]. We will incorporate planting proposals as part of the project, including a total of 14 trees and 4 500 shrubs.

29. We estimate that the proposed works will create about 180 jobs (145 for labourers and another 35 for professional or technical staff) providing a total employment of about 4 640 man-months.

Development Bureau
May 2016

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[4] "Important trees" refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one of more of the following criteria –

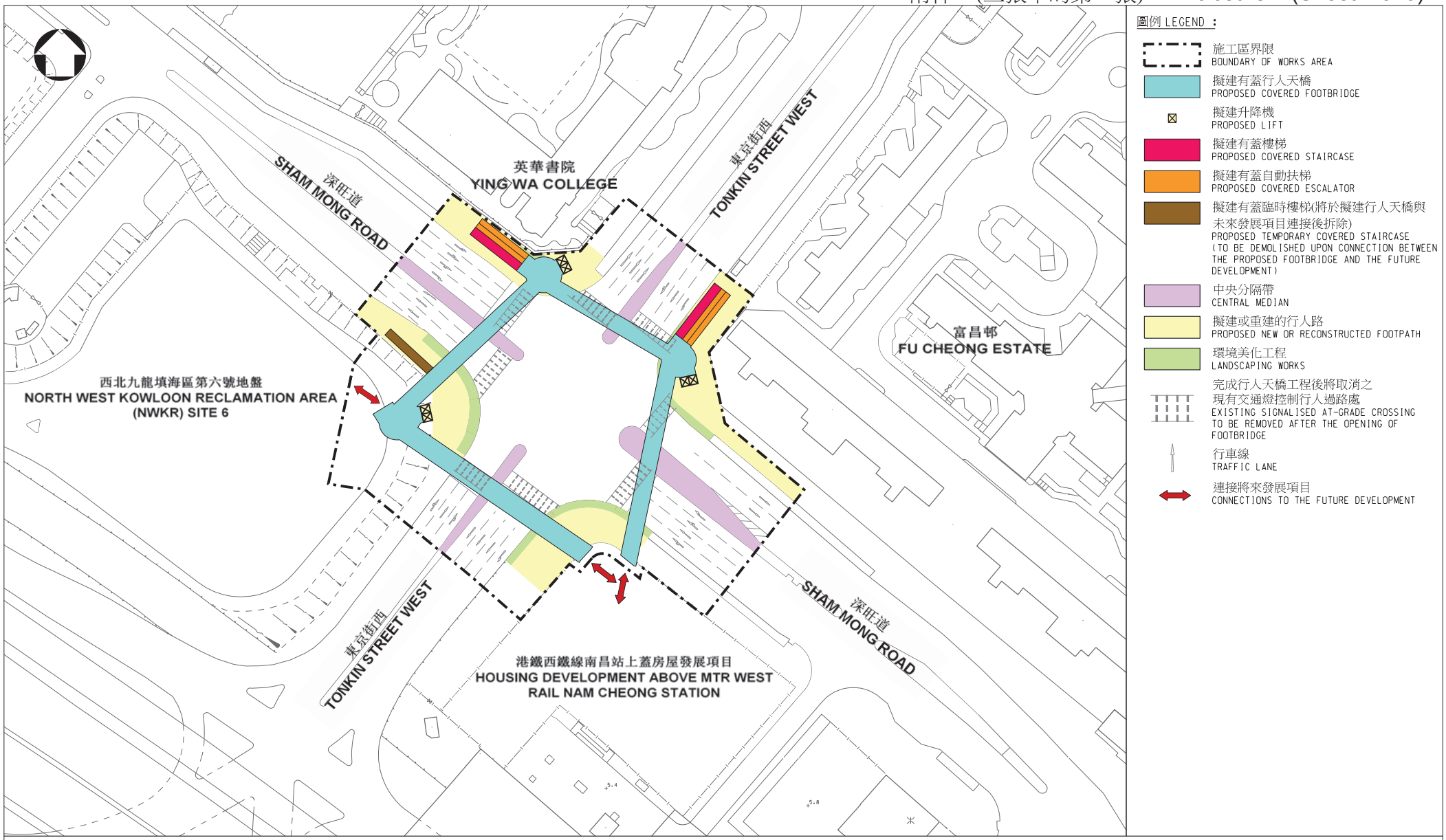
(a) trees of 100 years or above;

(b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument and trees in memory of important persons or events;

(c) trees of previous or rare species;

(d) trees of outstanding form (taking account of overall tree size, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or

(e) trees with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level), or with height or canopy spread equal or exceeding 25 m.



工務計劃項目第7332CL號（部分）西九龍填海計劃 - 主要工程（餘下部分）- 位於深水涉深旺道與東京街西交界處的行人天橋 - 平面圖

PWP ITEM NO.7332CL (PART) WEST KOWLOON RECLAMATION - MAIN WORKS (REMAINDER) - FOOTBRIDGE AT THE JUNCTION OF SHAM MONG ROAD AND TONKIN STREET WEST IN SHAM SHUI PO - SITE PLAN

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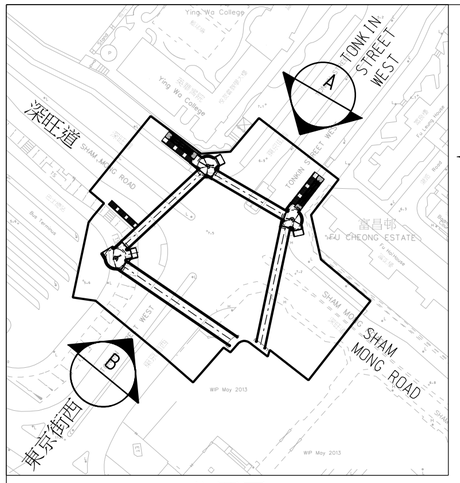
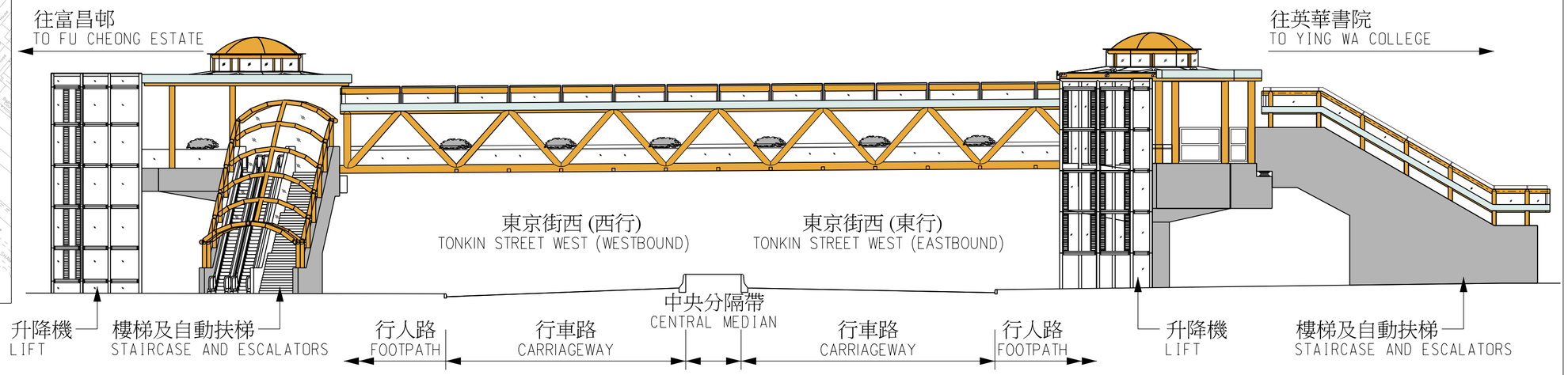


位置圖
LOCATION PLAN



視角A
VIEW A

不按比例
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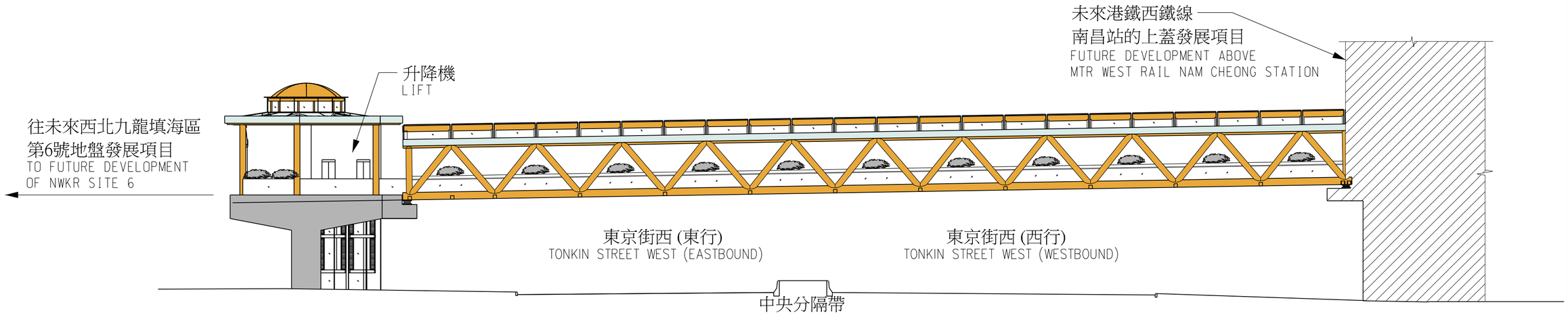

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VIEW B

不按比例
NOT TO SCALE

工務計劃項目第7332CL號（部分）西九龍填海計劃 - 主要工程（餘下部分）- 位於深水涉深旺道與東京街西交界處的行人天橋 - 立視圖

PWP ITEM NO.7332CL (PART) WEST KOWLOON RECLAMATION - MAIN WORKS (REMAINDER) - FOOTBRIDGE AT THE JUNCTION OF SHAM MONG ROAD AND TONKIN STREET WEST IN SHAM SHUI PO - ELEVATIONS

工務計劃項目第7332CL號（部分）西九龍填海計劃 - 主要工程（餘下部分）-
位於深水涉深旺道與東京街西交界處的行人天橋 - 構思圖

PWP ITEM NO.7332CL (PART) WEST KOWLOON RECLAMATION - MAIN WORKS (REMAINDER) -
FOOTBRIDGE AT THE JUNCTION OF SHAM MONG ROAD AND TONKIN STREET WEST IN SHAM SHUI PO - ARTIST IMPRESSION

Enclosure 2 to PWSC(2016-17)28

332CL (part) – West Kowloon Reclamation – main works (remainder) – footbridge at the junction of Sham Mong Road and Tonkin Street West in Sham Shui Po

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2015 prices)

			Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees ($ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional	--	--	--	1.6
		Technical	--	--	--	0.8
					Sub-total	2.4
(b)	Resident site staff (RSS) costs(Note 3)	Professional	70	38	1.6	8.3
		Technical	338	14	1.6	13.8
					Sub-total	22.1
	Comprising –					
	(i) Consultants' fees for management of RSS					2.5
	(ii) Remuneration of RSS					19.6
					Total	**24.5**

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS supplied by the consultants (as at now, MPS salary point 38 = $74,210 per month and MPS salary point 14 = $25,505 per month).

2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of **332CL**. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade part of **332CL** to Category A.

3. The actual man-months and fees will only be known after the completion of the construction works.

Enclosure 3 to PWSC(2016-17)28

LEGISLATIVE COUNCIL
PANEL ON DEVELOPMENT

Meeting on 26 April 2016

7332CL (part)
West Kowloon Reclamation – main works (remainder)

– Footbridge at the Junction of Sham Mong Road and Tonkin Street West in Sham Shui Po

Supplementary Information

As requested by Members at the above meeting, the Government provides the following supplementary information –

(a) Detailed breakdown of the project cost estimate (including the items "consultant's fees and remuneration of resident site staff" and "environmental mitigation measures").

Please refer to paragraph 9 of the paper.

(b) Whether and how the project cost estimate had taken into account the trends of labour and construction material costs, and the risk of project delay?

Please refer to paragraphs 11 and 12 of the paper.

(c) Whether it is practicable to facilitate the provision of more energy saving items, in particular photovoltaic (PV) panels?

Pursuant to the Government's prevailing guidelines, only those public infrastructure projects involving open spaces or flat surfaces with unshaded solar exposure area greater than 1 000 square metres would be suitable for adopting PV panels as a means of harvesting renewable energy. Given the actual topographical conditions of the proposed footbridge system, it would be shaded by the adjoining new developments and existing buildings. Open spaces or flat surfaces with unshaded solar exposure area will be far less than the above criteria. Taking into account the above and also the associated repair and maintenance costs, adoption of PV panels in the proposed footbridge system for power supply would not be cost and energy efficient.

At present, the design of the proposed footbridge system has been substantially completed. Based on our preliminary assessment, addition of PV panels and associated installation to the proposed footbridge system would give rise to 8% to 16% additional loads to the structure and thus will reduce the safety margin of the structural supporting capacity of the proposed footbridge system. A comprehensive review of the design of the entire proposed footbridge system will be required if PV panels are to be installed. The construction programme of this project will be severely delayed, which will be unable to meet the public aspiration for early implementation of the proposed footbridge system.

(d) Interface with the pedestrian passage facilities including round-the-clock barrier free access to be provided in the adjacent public and private developments.

The public housing development at North West Kowloon Reclamation Area (NWKR) Site 6 will provide round-the-clock access via covered escalators and staircase linking the adjoining public footpaths, with a walking distance of about 15 metres (m) from the proposed footbridge system at the deck floor. In addition, two lifts will be provided as barrier free access under the proposed works at this location.

The housing development above the existing MTR West Rail Nam Cheong Station will provide round-the-clock access via lift, covered escalators and staircase linking the adjoining public footpaths, with walking distances of about 10 m to 30 m from the proposed footbridge system at the deck floor.

A location plan of the above pedestrian passage facilities is attached at Annex 1 to Enclosure 3.

(e) Justifications for removing the existing at-grade pedestrian crossings at the relevant road junction and information in relation to the junction capacity and duration of traffic signal phases.

Upon commissioning of the proposed footbridge system, we propose to remove the existing at-grade pedestrian crossings at the above road junction for the following reasons:

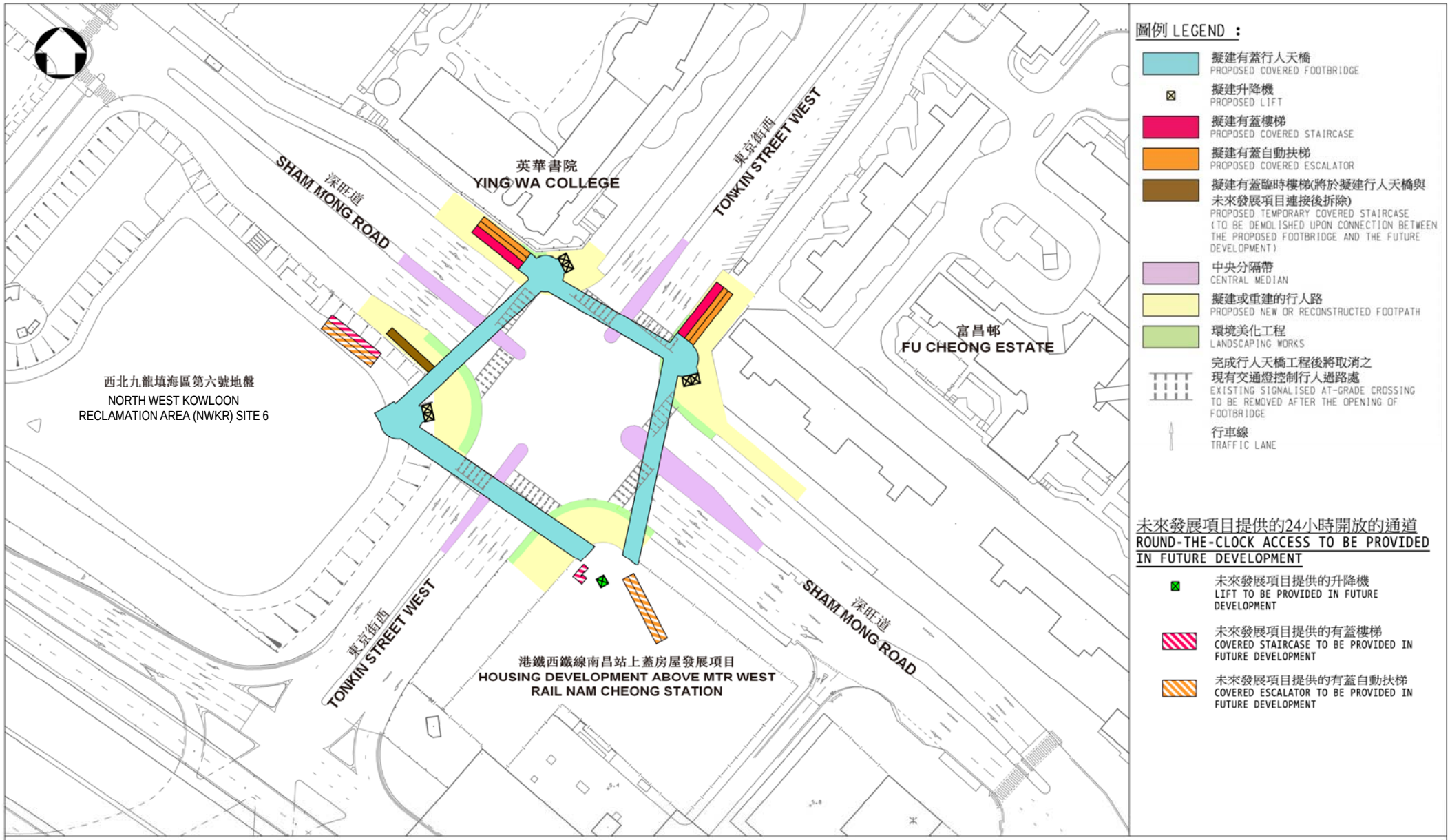
(i) Grade-separated walking environment can ensure the safety of traffic and pedestrians (especially students) – the two housing developments under construction adjoining the above road junction will accommodate a population of about 20 000. Together with the residents of Fu Cheong Estate and the nearby five schools (attended by about 5 000 students in total), the above road junction will become heavily trafficked. Retaining the existing at-grade pedestrian crossings at the above road junction will increase the risk of traffic accident. In fact, the local community and

nearby schools did not object to the proposed removal of the existing at-grade pedestrian crossings.

(ii) Cost-effectiveness – if the existing at-grade pedestrian crossings are to be retained after commissioning of the proposed footbridge system, it is anticipated that the pedestrian flow of the proposed footbridge will very likely be reduced, thereby lowering the cost effectiveness of the current design of the footbridge system, in particular the width of the footbridge and the provision of escalators, leading to a wastage of resources.

(iii) Enhancement of junction capacity for traffic flow – currently, the cycle time of the above signal-controlled road junction is about 2 minutes, in which the vehicular traffic time is about 90 seconds. Upon commissioning of the proposed footbridge system and removal of the existing at-grade pedestrian crossings, the vehicular traffic time will be increased to about 105 seconds, thereby improving the capacity of the above road junction in terms of traffic flow. The reserved capacity of the above road junction is currently slightly below 40% and is anticipated to be reduced to about 27% in 2031 with the existing at-grade pedestrian crossings removed. However, if the existing at-grade pedestrian crossings are to be retained, it is anticipated that the reserved capacity of the above road junction will be reduced to about -10% in 2031, which means the junction capacity will be overloaded.

Notwithstanding the above, upon commissioning of the proposed footbridge system, we will consult the Transport Department and review the actual conditions before proceeding to remove the existing at-grade pedestrian crossings at the above road junction to enhance road safety and improve junction capacity.



工務計劃項目第7332CL號（部分）西九龍填海計劃 - 主要工程（餘下部分）-
位於深水涉深旺道與東京街西交界處的行人天橋 - 補充資料

PWP ITEM NO.7332CL (PART) WEST KOWLOON RECLAMATION – MAIN WORKS (REMAINDER) –
FOOTBRIDGE AT THE JUNCTION OF SHAM MONG ROAD AND TONKIN STREET WEST IN SHAM SHUI PO – SUPPLEMENTARY INFORMATION

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