For discussion **PWSC(2018-19)37**
21 January 2019

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 – HIGHWAYS
Transport – Roads
863TH – Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road

Members are invited to recommend to the Finance Committee the upgrading of **863TH** to Category A at an estimated cost of $432.3 million in money-of-the-day prices.

PROBLEM

The western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road is a single-lane road for two way traffic. Upon the opening up of the Frontier Closed Area (FCA), the estimated traffic demand will exceed the capacity of the concerned road section.

PROPOSAL

2. The Director of Highways proposes, with the support of the Secretary for Transport and Housing, to upgrade **863TH** ("the Project") to Category A at an estimated cost of $432.3 million in money-of-the-day (MOD) prices.

PROJECT SCOPE AND NATURE

3. The proposed scope of works under the Project includes –

/(a) …..

(a) widening of a section of Lin Ma Hang Road of approximately 750 metres long between Ping Yuen River and Ping Che Road to a single two-lane carriageway with a 2 metres wide footpath on both sides;

(b) construction of a vehicular bridge of 70 metres long and 8.3 metres wide across Ping Yuen River;

(c) construction of an access road at the eastern end of the proposed vehicular bridge to the existing boundary patrol road and Drainage Services Department (DSD)'s maintenance access road; and

(d) associated civil and road works, slope, retaining walls, public lighting, drainage and landscaping works, reprovisioning of affected public facilities and environmental mitigation measures.

——— A layout plan and cross sections of the Project are at Enclosure 1. Subject to funding approval of the Finance Committee (FC) in this legislative year, we plan to commence the construction works in the second half of 2019 for completion by the fourth quarter of 2023.

JUSTIFICATION

4. The western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road (including an existing vehicular bridge across Ping Yuen River) is a single-lane road for two way traffic of approximately 3.5 metres wide. The concerned road was originally located within the FCA[1] and was designed to cope with the limited traffic flow within the restricted area. With the phased implementation of the reduction of the FCA, the concerned road section no longer falls within the FCA since January 2016. Restriction on vehicle access to the concerned road has been cancelled and there has therefore been an increasing trend in traffic demand along that road. The traffic flow and volume /capacity (v/c) ratio[2] /during …..

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[1] The reduction of FCA has been implemented in three stages since 2012. The third stage covering the FCA between Ng Tung River and Lin Ma Hang was implemented in January 2016.

[2] A v/c ratio equals to or less than 1.0 is considered acceptable. A v/c ratio between 1.0 and 1.2 indicates a manageable degree of congestion. A v/c ratio above 1.2 indicates more serious congestion.

during peak hours of the relevant road section before and after the opening up of the FCA in 2016 are as follows:

Year	**Peak Traffic Flow (passenger car unit per hour) (pcu/hr)**	**v/c ratio**
2012	Around 110	0.18
2017	Around 660	1.10

5. At present, the v/c ratio of the concerned road has reached 1.10, indicating that traffic congestion will occur during peak hours. The situation is undesirable for the concerned single-lane road for two way traffic. According to the traffic impact assessment, it is expected that the traffic demand will exceed the capacity of the concerned road section. Therefore, we need to widen the aforementioned western section of Lin Ma Hang Road to relieve the current traffic congestion as well as to cope with the anticipated traffic growth. Upon completion of the Project, it is anticipated that the v/c ratios of the concerned road during peak hours in 2023 and 2032 will be improved as follows:

Year	**v/c ratio**	
	Without the Project	**With the Project**
At present (2017)	1.10	-
2023	1.18	0.48
2032	1.39	0.56

6. Currently, the western section of Lin Ma Hang Road lies across Ping Yuen River as a single-lane vehicular bridge for two way traffic. The Project will retain the existing bridge for future westbound traffic, and will construct a new single-lane bridge ("proposed vehicular bridge") at its north for future eastbound traffic with an emergency / utilities access.

/7. …..

7. As the proposed vehicular bridge is located within the current FCA, the Government will accordingly amend the Frontier Closed Area Order (Cap. 245A) to stipulate the revised FCA boundary in due course taking into account the construction progress such that the proposed vehicular bridge will be open for public use upon completion.

8. Moreover, the entrance of the existing boundary patrol road and DSD's maintenance access road will be affected by the construction of the proposed vehicular bridge. Therefore, an access road at the eastern end of the proposed vehicular bridge will need to be constructed for connecting the boundary patrol road and the maintenance access road to the widened Lin Ma Hang Road.

FINANCIAL IMPLICATIONS

9. We estimate that the capital cost of the Project will be $432.3 million in MOD prices (please see paragraph 11 below), broken down as follows –

			$ million (in MOD prices)
(a)	Roads and drains		99.1
(b)	Slopeworks and retaining walls		60.3
(c)	Vehicular bridge		109.5
(d)	Landscaping works		18.9
(e)	Environmental mitigation measures		18.1
(f)	Access road to the existing boundary patrol road and DSD's maintenance access road, reprovision of affected public facilities and associated works		36.7
(g)	Consultants' fee for		3.6
	(i) contract administration	2.3	
	(ii) management of resident site staff (RSS)	1.3	
(h)	Remuneration of RSS		49.8

/(i) …..

		$ million (in MOD prices)
(i)	Contingencies	36.3
	Total	432.3

10. The Highways Department (HyD) proposes to engage consultants to undertake the contract administration and site supervision for the Project. A breakdown of the estimates for consultants' fees and RSS costs by man-month (in September 2018 prices) is at Enclosure 2.

11. Subject to funding approval in this legislative session, we plan to phase the expenditure as follows –

Year	**$ million (MOD)**
2019 – 2020	53.3
2020 – 2021	82.8
2021 – 2022	79.6
2022 – 2023	57.7
2023 – 2024	41.3
2024 – 2025	37.5
2025 – 2026	39.2
2026 – 2027	40.9
	432.3

12. 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 2019 to 2027. Subject to funding approval, we will deliver the construction works under the New Engineering Contract (NEC) form [3]. The contract will provide for price adjustments.

/13. …..

[3] NEC is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It is a contract form that emphasises cooperation, mutual trust and collaborative risk management between contracting parties.

13. We estimate that the annual recurrent expenditure arising from the Project is about $2.2 million.

PUBLIC CONSULTATION

14. The HyD conducted local consultation for six weeks between August and September 2014 to collect local views on the design of the preliminary alignment of the proposed works through distribution of opinion forms in Ta Kwu Ling District, and organisation of focus group meetings and a public forum. The local consultation outcome showed that in order to cope with the anticipated traffic growth, the public generally supported the implementation of the Project. Having taken into account views collected from public consultations, the HyD then developed the scheme of the Project and consulted the Ta Kwu Ling District Rural Committee and the Traffic and Transport Committee of North District Council on the scheme in January and February 2016 respectively. The two committees supported the Project.

15. We gazetted the scheme and plan of the Project under the Roads (Works, Use and Compensation) Ordinance (Cap 370) ("the Ordinance") on 18 and 25 August 2017. During the statutory period, one objection was received. The objection concerns the compensation arrangement for land to be resumed. After the HyD's explanation on the details of the resumption and the compensation arrangement, the objector withdrew the objection unconditionally. The scheme was subsequently authorised under the Ordinance. The relevant authorisation notice was gazetted on 26 January and 2 February 2018.

16. The HyD has consulted the Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS)[4] on the proposed aesthetic designs of the proposed vehicular bridge and the retaining walls of the Project. The ACABAS accepted the proposed aesthetic designs.

/17. …..

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

17. We consulted the Legislative Council Panel on Transport on the funding application for the Project on 14 December 2018. Members supported the implementation of the Project.

ENVIRONMENTAL IMPLICATIONS

18. The Project is not a designated project under the Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap 499). We have completed an Environmental Review (ER) of which the findings were agreed by the Director of Environmental Protection in January 2016. The ER has concluded that with the implementation of the recommended mitigation measures in the ER including low noise road surfacing, etc, the Project will not cause long-term environmental impact. We have included in the project estimate the cost to implement all necessary measures to mitigate environmental impact.

19. During construction, we will implement mitigation measures in compliance with the established standards and guidelines to control the nuisances caused by construction noise, dust and site run-off. These measures include frequent cleaning and regular water spraying at the works site for dust control; the use of temporary noise barriers and quiet plants; provision of cofferdams to minimise impacts to the water quality during the construction of the proposed vehicular bridge across Ping Yuen River; and prevention of impacts on the dry weather flow channel of Ping Yuen River brought about by the foundation works of the proposed vehicular bridge.

20. At the planning and design stages, we have considered all the proposed works and construction procedures to reduce generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste on site or in other suitable construction sites as far as possible, so as to minimise the disposal of inert construction waste to public fill reception facilities[5]. 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.

/21. …..

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[5] 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 measures 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 and will require the contractor to separate inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will monitor 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 Project will generate in total about 10 730 tonnes of construction waste. Of these, we will reuse about 1 800 tonnes (16.8%) of inert construction waste on site and deliver 6 710 tonnes (62.5%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 2 220 tonnes (20.7%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at public fill reception facilities and landfill sites is estimated to be $0.92 million for the Project (based on a unit charge rate of $71 per tonne for disposal at public fill reception facilities and $200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

HERITAGE IMPLICATIONS

23. The Project 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

24. The Project requires the resumption of about 5 017.9 square metres (m^2) of private agricultural land and clearance of about 17 482.1 m^2 of Government land. Clearance of domestic structures and business undertakings are not required. The cost of land resumption and clearance, estimated at about $34.1 million, will be charged to **Head 701 "Land Acquisition"**. A breakdown of the land acquisition cost is at Enclosure 3.

/**TRAFFIC** …..

TRAFFIC IMPLICATIONS

25. The construction works will not cause significant impact on the traffic in the area concerned. The Government will implement Temporary Traffic Arrangements (TTA) to maintain traffic flow during construction and set up a traffic management liaison group to assess the effectiveness of the TTA. This group comprises representatives of the Transport Department, the Hong Kong Police Force, other concerned Government departments and the contractor. The HyD will specify requirements for implementing the TTA in the works contract to minimise the traffic impact during construction. The HyD will also display publicity boards on site providing details of the TTA and the anticipated completion dates of individual sections of works. In addition, the HyD will set up a telephone hotline for public enquiries or complaints.

BACKGROUND INFORMATION

26. We upgraded **863TH** to Category B in September 2013. The HyD engaged an engineering consultant in March 2014 to undertake the site investigation and detailed design of the Project at a total cost of about $6 million. We have charged this amount to block allocation **Subhead 6100TX** "Highway works, studies and investigations for items in Category D of the Public Works Programme". The site investigation and detailed design have been substantially completed.

27. There are 118 trees within the project boundary. Among them, 61 trees will be preserved. The proposed works will involve removal of 57 trees including 56 trees to be felled, among which one of them being an important tree[6], and one important tree to be transplanted. A summary of the affected important trees is at Enclosure 4. We will incorporate planting proposals as part of the Project, including estimated quantities of 60 trees and 30 000 shrubs in different places covering a planting area of about 4 200 m^2.

/28. …..

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

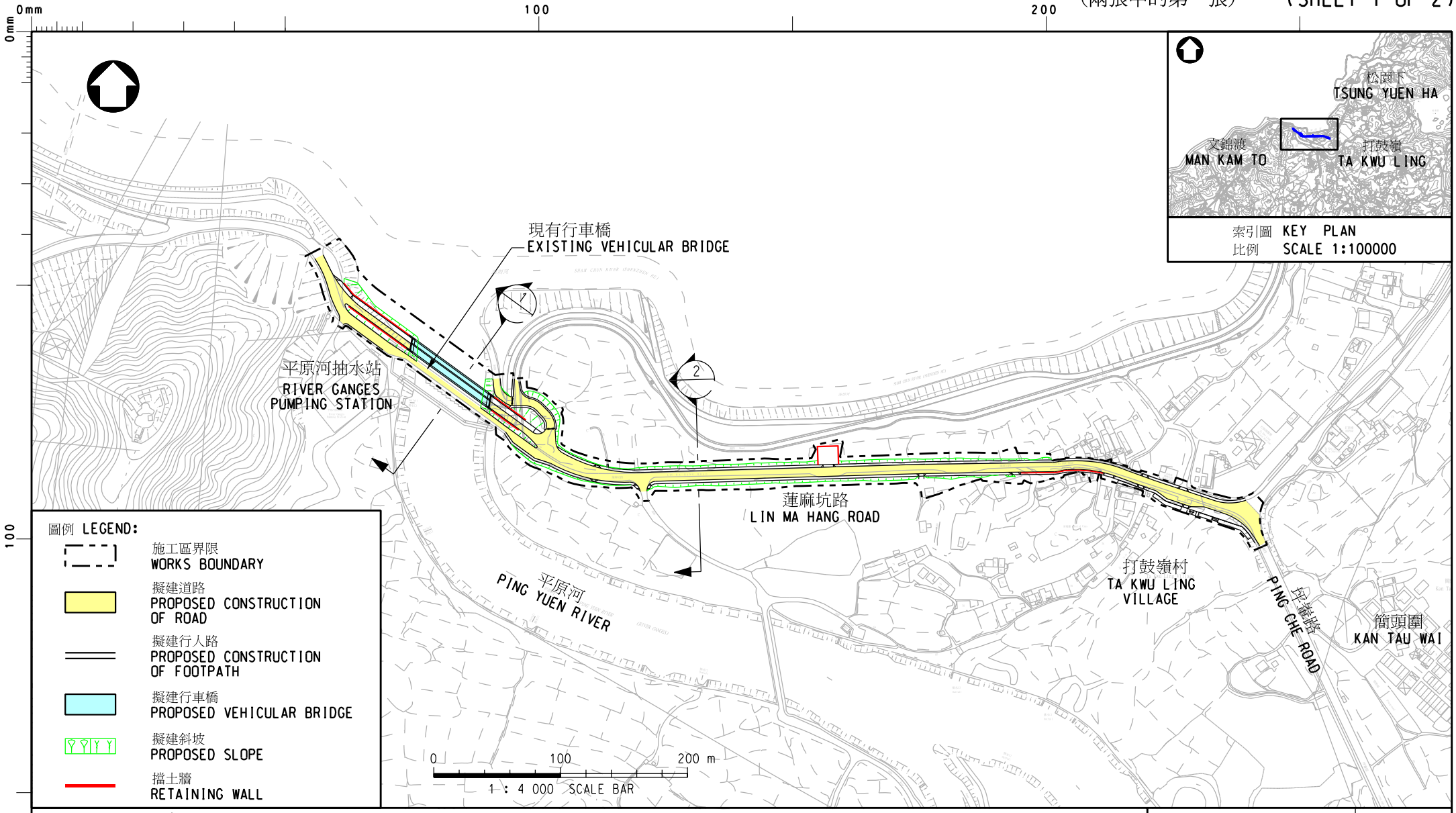
(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of important person or event;
(c) trees of precious or rare species;
(d) trees of outstanding forms (taking account of overall tree size, shape and any special feature) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
(e) trees with trunk diameter of or exceeding 1.0 metre (measured at 1.3 metres above ground level), or with height/canopy spread of or exceeding 25 metres.

28. We estimate that the proposed Project will create about 110 jobs (85 for labourers and 25 for professional or technical staff) providing a total employment of 4 700 man-months.

Transport and Housing Bureau
Highways Department
January 2019

附件一
(兩張中的第一張)

ENCLOSURE 1
(SHEET 1 OF 2)



圖則名稱 plan title

工務計劃項目第6863TH號蓮麻坑路西段(平原河至坪輋路)擴闊工程 - 平面圖

PWP ITEM NO. 6863TH WIDENING OF WESTERN SECTION OF LIN MA HANG ROAD BETWEEN PING YUEN RIVER AND PING CHE ROAD - LAYOUT PLAN

圖則編號 plan no.
HMW6863TH-SK0007

比例 scale
1:4000 或圖示
Or As Shown

HIGHWAYS DEPARTMENT HONG KONG
香港 路政署

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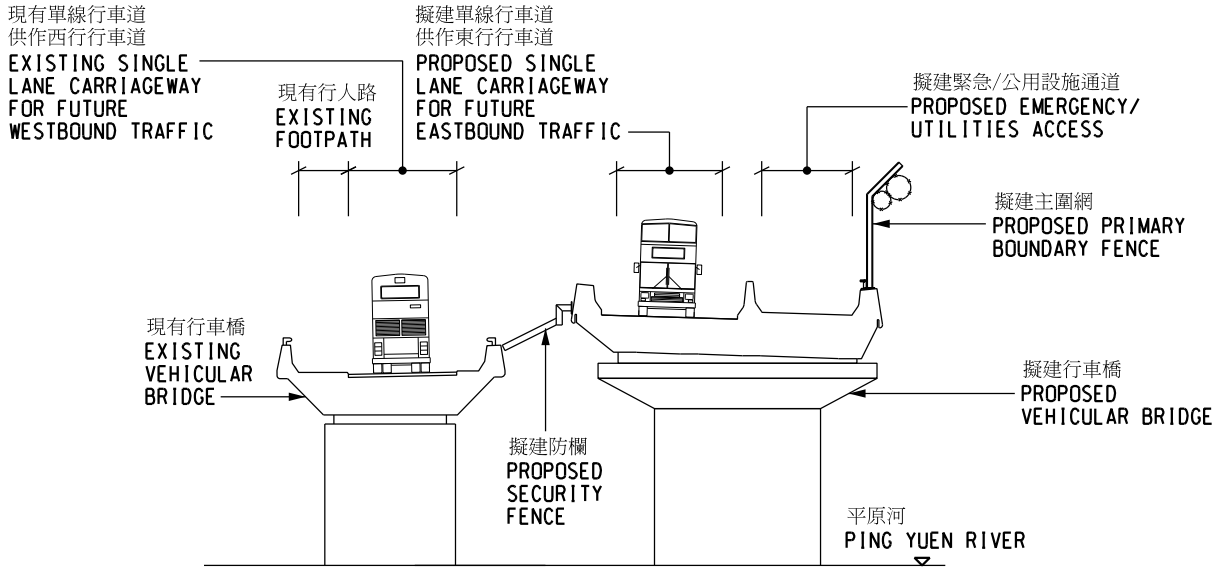
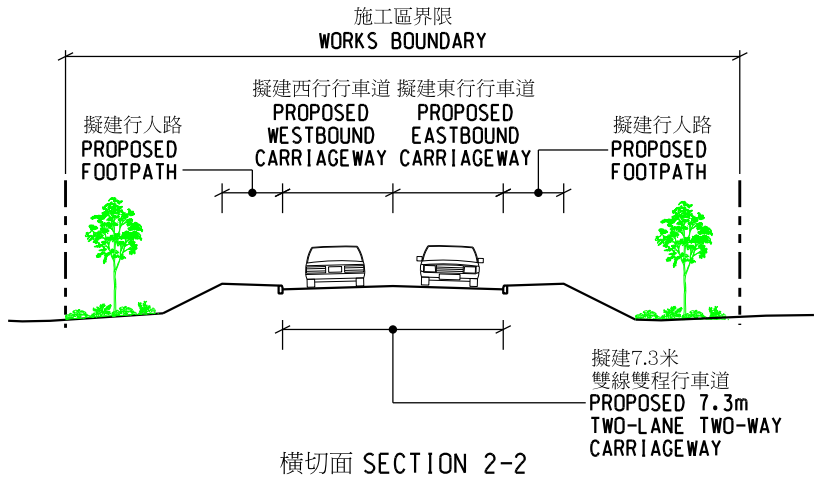
A4 210 x 297



橫切面 SECTION 1-1



橫切面 SECTION 2-2

圖則名稱 plan title

工務計劃項目第6863TH號蓮麻坑路西段(平原河至坪輋路)擴闊工程 - 切面圖

PWP ITEM NO. 6863TH WIDENING OF WESTERN SECTION OF LIN MA HANG ROAD
BETWEEN PING YUEN RIVER AND PING CHE ROAD - SECTIONS

圖則編號 plan no.
HMW6863TH-SK0008

比例 scale
示意圖
DIAGRAMMATIC

HIGHWAYS DEPARTMENT HONG KONG
路政署 香港

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A4 210 x 297

863TH –Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2018 prices)

		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)
(a) Consultants' fee for					
(i) Contract administration (Note 2)	Professional	–	–	–	1.7
	Technical	–	–	–	0.3
				Sub-total	2.0#
(b) Resident site staff (RSS) costs (Note 3)	Professional	162	38	1.6	21.2
	Technical	462	14	1.6	21.2
				Sub-total	42.4
Comprising –					
(i) Consultants' fees for management of RSS				1.0#	
(ii) Remuneration of RSS				41.4#	
				Total	**44.4**

* 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 of now, MPS salary point 38 = $81,975 per month and MPS salary point 14 = $28,725 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 **863TH**. The construction phase of the assignment will only be executed subject to FC's approval to upgrade **863TH** to Category A.
3. The actual man-months and fees will only be known after completion of the construction works.

Remarks

The cost figures in this Enclosure are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in MOD prices in paragraph 9 of the main paper.

863TH – Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road

Breakdown of land acquisition cost

			$ million
(I)	**Estimated cost for land acquisition (resumption of private land)**		30.36
(II)	**Estimated cost for land clearance**		0.66
(a)	Ex-gratia allowances for agricultural undertakings	0. 58	
(b)	Ex-gratia allowances for miscellaneous village matters	0.08	
(III)	**Interest and Contingency Payment**		3.05
(a)	Interest payment on land compensations and ex-gratia allowances	0.01	
(b)	Contingency on the estimated land acquisition cost	3.04	
		Total	34.07
			(say 34.1)

Note

The above estimated land acquisition cost is based on the prevailing rates as at November 2018.

863TH –Widening of western section of Lin Ma Hang Road between Ping Yuen River and ping Che Road
Summary of "important tree" affected

Project No. : 863TH **Project Title : Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road**

Tree ref. no.	**Species**		**Measurements**			**Amenity value[1]**	**Form**	**Health condition**	**Structural condition**	**Suitability for transplanting[2]**		**Conservation status[3]**	**Recommendation**	**Department to provide expert advice to LandsD**	**Additional Remarks**
	Scientific name	Chinese name	Height (m)	DBH[4] (mm)	Crown spread (m)	(Good/Fair/Poor)				(High/ Medium/ Low)	**Remarks**		(Retain/ Transplant/ Fell)		
T233	*Ficus microcarpa*	細葉榕	12	1300	24	Good	Good	Fair	Good	Med	-	Nil	Transplant	Highways Department	-
T303	*Cinnamomum camphora*	樟	12	1100	14	Fair	Poor	Poor	Poor	Low	Preparation of intact and sufficient-sized root ball not practical; Tree already with non-recoverable structural problem such as leaning and girdling roots.	Nil	Fell	Leisure and Cultural Services Department	-

[1] Amenity value of the tree is assessed by its functional value for shade, shelter, screening, reduction of pollution and noise and other environmental factors, etc, and classified into the following categories-
Good: Important trees which should be retained by adjusting the design layout accordingly.
Fair: Trees that are desirable to be retained in order to create a pleasant environment, which includes healthy specimens of lesser importance than "Good" trees.
Poor: Trees that are dead, dying or potentially hazardous and should be removed.
[2] Assessment has taken into account conditions of the tree at the time of survey (including health, structure, age and root conditions), site conditions (including topography and accessibility) and intrinsic characters of tree species (survival rate after transplanting).
[3] Conservation status is based on the rarity and protection status of the species under relevant ordinances in Hong Kong, such as Rare and Precious Plants of Hong Kong, the International Union for Conservation of Nature Red List of Threatened Species and the Forests and Countryside Ordinance.
[4] Diameter at Breast Height (DBH) of a tree refers to its trunk diameter at breast height (i.e. measured at 1.3 metres above ground level).