

For information

Legislative Council Panel on Planning, Lands and Works

120CD – Drainage improvement in Sai Kung

PURPOSE

This paper briefs Members on the Administration's proposal to upgrade **120CD** "Drainage improvement in Sai Kung", to Category A at an estimated cost of about \$158 million in money-of-the-day (MOD) prices for the drainage improvement works at Ho Chung River, Sai Kung River and Pak Kong River in Sai Kung.

PROJECT SCOPE

2. The scope of the proposed drainage improvement works comprises –
 - (a) construction of about 700 metres (m) long drainage channels with width ranging from 17 to 45 m and provision of ancillary works at Ho Chung River;
 - (b) construction of about 150 m long drainage channels about 23 m wide, about 300 m long box culverts about 11 m wide and provision of ancillary works at Sai Kung River; and
 - (c) improvement of two bottlenecks and provision of ancillary works at Pak Kong River.

A site plan and typical sections showing the proposed works are at **Enclosure 1**.

3. We plan to start construction of the proposed works in early 2007 for completion in late 2009.

JUSTIFICATION

4. Owing to urban developments in Sai Kung over the past decade, more and more natural ground has been paved over and become impermeable. Rainwater which previously dissipated naturally through ground infiltration can no longer do so. This has led to significant increase in surface run-off and

overloading of Ho Chung River, Sai Kung River and Pak Kong River. As a result, many areas in Sai Kung are susceptible to flooding during heavy rainstorms.

5. To alleviate the flooding risks in the areas concerned and to meet the community's increasing expectation for better flood protection, we propose to train Ho Chung River and Sai Kung River, raising their flood protection standard, in general, to withstand flood events with a return period¹ of one in 50 years.

6. A similar training proposal at Pak Kong River met with strong objections from villagers during consultation. In order to address villagers' requests in minimizing land resumption, we propose to remove two bottlenecks by re-construction of two existing crossings. The proposed design, however, would protect the area around Pak Kong River from rainstorms with a return period of one in 2 years only. This flood protection level was highlighted in our consultation paper submitted for discussion at the meeting of the Tai Chung Hau Village Mutual Committee on 17 February 2004. Members of the Tai Chung Hau Village Mutual Committee unanimously accepted the lower flood protection level and agreed to the design.

FINANCIAL IMPLICATIONS

7. We estimate the cost of the proposed works to be \$158 million (in MOD prices), made up as follows –

	\$ million
(a) Drainage improvement works and ancillary works at-	126
(i) Ho Chung River	68
(ii) Sai Kung River	49
(iii) Pak Kong River	9
(b) Environmental mitigation measures	4

¹ "Return period" is the average number of years during which a certain severity of flooding will occur once, statistically. A longer return period means a rarer chance of occurrence of a more severe flooding.

	\$ million	
(c) Consultants' fees for	14	
(i) contract administration	2	
(ii) site supervision	12	
(d) Contingencies	14	
	<hr/>	
Total :	158	(in MOD prices)

8. We estimate the annually recurrent expenditure arising from this project to be \$470,000.

PUBLIC CONSULTATION

9. We consulted the Sai Kung Rural Committee and the Sai Kung District Council on 8 December 2003 and 24 February 2004 respectively. All supported implementation of the proposed works.

10. We gazetted the proposed works for Pak Kong River and for Ho Chung River under the Foreshore and Sea-bed (Reclamations) Ordinance on 18 February and 13 May 2005 respectively. We received two objections for the proposed works at Ho Chung River. After our clarification, they unconditionally withdrew their objections.

11. We gazetted the proposed works for Pak Kong River and Sai Kung River and for Ho Chung River under the Roads (Works, Use and Compensation) Ordinance on 6 May and 10 June 2005 respectively. We received four objections (one for the proposed works at Sai Kung River and three for Ho Chung River) in total. One objector expressed concern on the resumption limit and unconditionally withdrew the objection after our clarification. The other three objectors requested us to revise the land resumption limit so as to avoid clearance of their squatter structures or reduce resumption of their land. We re-examined the design and revised the land resumption limit. The objectors unconditionally withdrew their objections after the modifications. We then gazetted the amended land resumption plan on 13 April 2006 to which no further objection was received.

ENVIRONMENTAL IMPLICATIONS

12. The proposed drainage works are classified as a designated project under the Environmental Impact Assessment (EIA) Ordinance (Cap 499). We completed the EIA Report and obtained the environmental permit in May 2005. The EIA report concluded that the environmental impacts of the proposed works could be controlled to comply with the criteria under the EIA Ordinance and the Technical Memorandum on EIA Process. We will implement the recommendations of the EIA study in the construction and operation stages of the project.

13. For short-term impacts during construction, we will control noise, dust, and site run-off within the standards and guidelines through implementation of mitigation measures, such as the use of temporary noise barriers and silenced construction plants to reduce noise generation, water-spraying to reduce emission of fugitive dust and strict control on diversion of stream flows in the works contract. We also adopt environmental friendly designs such as gabion walls, natural substrates on riverbed, fish ladder and ecological planting.

14. We have considered ways in the planning and design stages to reduce the generation of construction and demolition (C&D) materials. In addition, we will require the contractor to reuse insert C&D materials on site or in other suitable construction sites as far as possible, in order to minimise the disposal of C&D materials to public fill reception facilities². We will encourage the contractors to maximise the use of recycled or recyclable C&D materials, as well as the use of non-timber in formwork to further minimise the generation of construction waste.

15. We will also require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will ensure that the day-to-day operations on site comply with the approved WMP. We will control the disposal of public fill and C&D waste to public fill reception facilities and landfills respectively through a trip-ticket system. We will require the contractor to separate public fill from C&D waste for disposal at appropriate facilities. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes.

16. We estimate that the project will generate about 179 600 tonnes of C&D materials. Of these, we will reuse about 23 300 tonnes (13%) on site,

² Public filling reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

deliver 127 300 tonnes (71%) to public fill reception facilities for subsequent reuse and dispose of 29 000 tonnes (16%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be about \$7.1 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne at the landfill³).

TRAFFIC IMPLICATIONS

17. We have carried out traffic impact assessment (TIA) for the proposed works. The TIA has concluded that the proposed works would not cause unacceptable traffic impact.

BACKGROUND

18. In December 2001, we included **120CD** “Drainage improvements in Sai Kung” in Category B for the improvement of drainage systems in Sai Kung.

19. In April 2002, we upgraded part of **120CD** to Category A as **124CD** “Drainage improvement in Sai Kung – consultants’ fees, investigations and advance works”, at an estimated cost of \$30.5 million in MOD prices, for engaging consultants to carry out detailed design for the drainage improvement works and construction of a section of box culvert at the downstream of Sai Kung River (advance works). We started the advance works in September 2002 and completed them in March 2005.

20. Of the 1 105 trees within the project boundary, 639 trees will be preserved. The proposed works will involve the removal of 464 common trees including 386 trees to be felled and 78 trees to be replanted within the project site. Besides, two important trees⁴ will be affected during the implementation of the

³ This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m³), nor the cost to provide new landfills (which are likely to be more expensive) when the existing ones are filled.

⁴ “Important trees” refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

- (a) trees over 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 persons or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, 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 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25m.

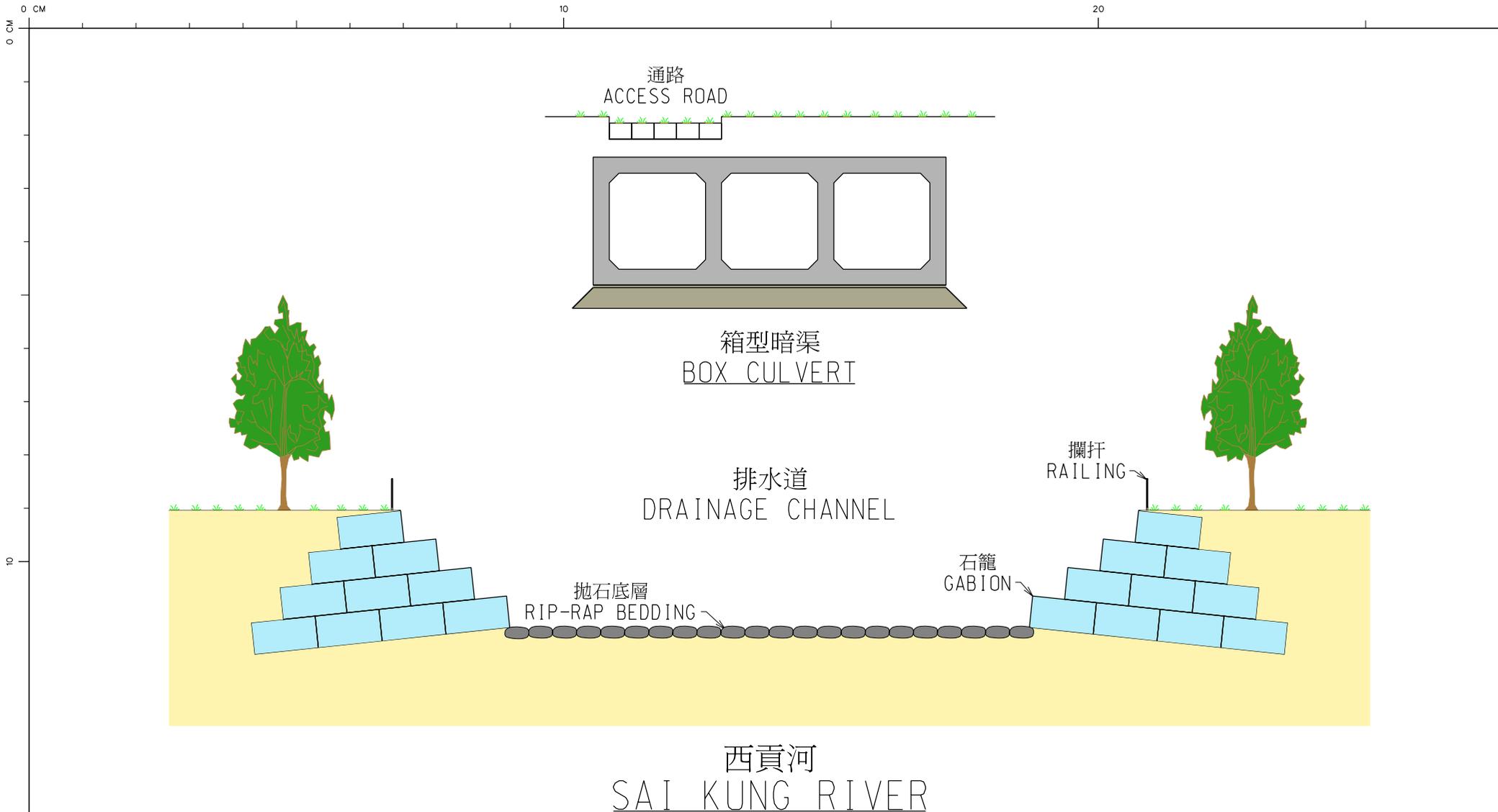
project. A summary of important trees affected is provided at **Enclosure 2**. We will incorporate planting proposal as part of the project, including estimated quantities of 442 trees and 1790 m² of grassed area.

21. We estimate that the proposed works will create about 85 jobs (68 for labourers and another 17 for professional/technical staff) providing a total employment of 2400 man-months.

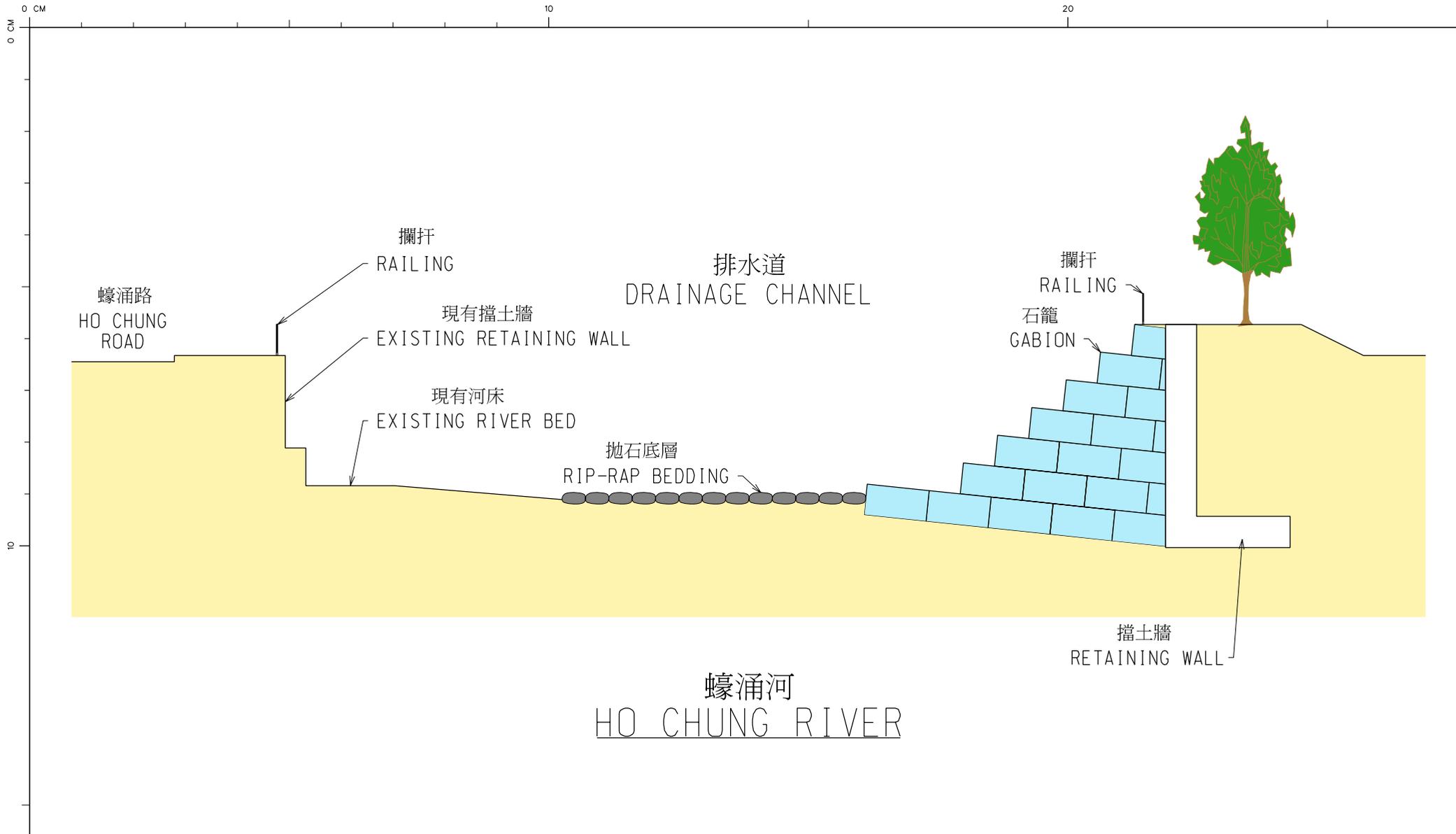
WAY FORWARD

22. Members are invited to support our proposal for upgrading of **120CD** for consideration by the Public Works Subcommittee and for funding approval by the Finance Committee in early 2007.

Environment, Transport and Works Bureau
November 2006



圖則名稱 drawing title		繪畫 drawn		日期 date		圖則編號 drawing no.		比例 scale	
工務計劃項目第120CD - 西貢雨水排放系統改善計劃 PWP ITEM No.120CD DRAINAGE IMPROVEMENT IN SAI KUNG		SIGNED C. K. LAM		22.MAY.05		DPM/120CD0/0002A		N. T. S.	
		核對 checked		日期 date					
		SIGNED F. K. PONG		09.JUN.05					
批核 approved		日期 date		保留版權 COPYRIGHT RESERVED		 香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION			
部門 office		工程管理部 PROJECT MANAGEMENT DIVISION							



圖則名稱 drawing title 工務計劃項目第120CD - 西貢雨水排放系統改善計劃 PWP ITEM No.120CD DRAINAGE IMPROVEMENT IN SAI KUNG	繪畫 drawn SIGNED C. K. LAM 日期 date 04.OCT.06	圖則編號 drawing no. DPM/120CD0/0003 比例 scale N. T. S.
	核對 checked SIGNED F. K. PONG 日期 date 11.OCT.06	保留版權 COPYRIGHT RESERVED
	批核 approved 日期 date	香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
	部門 office 工程管理部 PROJECT MANAGEMENT DIVISION	

附件一 (全三張其三) ENCLOSURE 1 (SHEET 3 OF 3)

**Summary of “Important Trees” involved in
120CD - Drainage Improvement in Sai Kung**

Tree ref no.	Tree species (Botanical names)	Tree size			Form ⁽¹⁾ (Good/Fair/Poor)	Survival rate after transplanting (High/Medium/Low)	Amenity value (High/Medium/Low)	Recommendation (Retain/Transplant/Fell)	Remarks
		Overall height (m)	Trunk diameter ⁽²⁾ (mm)	Average crown spread (m)					
T234	Ehretia acuminata	8	200	4	Fair	High	High	Transplant within the site	1. Rare species 2. The tree is located in the middle of the proposed Ho Chung Channel and cannot be retained.
T235	Ehretia acuminata	3	100	1	Fair	High	High	Transplant within the site	1. Rare species 2. The tree is located in the middle of the proposed Ho Chung Channel and cannot be retained.

⁽¹⁾ Form of a tree will take account of the overall tree size, shape, and any special feature.

⁽²⁾ Trunk diameter of a tree refers to its diameter at breast height (i.e. measured at 1 metre above ground level).