For discussion **PWSC(2005-06)48**
on 15 February 2006

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE
Civil Engineering – Drainage and erosion protection
125CD – Drainage improvement from Tung Kok Wai to San Wai, Fanling

Members are invited to recommend to Finance Committee the upgrading of **125CD** to Category A at an estimated cost of $57.9 million in money-of-the-day prices for drainage improvement works from Tung Kok Wai to San Wai in Fanling.

PROBLEM

The areas from Tung Kok Wai to San Wai in Fanling are susceptible to frequent flooding during heavy rainstorms due to inadequacy of the existing drainage system.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade **125CD** to Category A at an estimated cost of $57.9 million in money-of-the-day (MOD) prices for improvement of the drainage system in Tung Kok Wai and San Wai in Fanling.

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PROJECT SCOPE AND NATURE

3. The scope of **125CD** comprises –

(a) construction of about 920 metres (m) of box culverts with width varying from 4 m to 5 m and height varying from 2.5 m to 3.5 m; and

(b) ancillary works.

4. We plan to start the proposed works in April 2006 for completion in April 2008. A site plan showing the proposed works is at Enclosure.

JUSTIFICATION

5. The areas around Tung Kok Wai and San Wai located at the eastern fringe of Fanling are low-lying. At present, surface run-off within the drainage catchment areas from Tung Kok Wai to San Wai is collected and discharged to Ma Wat River via a watercourse with its banks protected by sprayed concrete, running through local residential areas including Kan Lung Tsuen, San Wai, Ma Liu Shui San Tsuen and Lung Yeuk Tau, as well as community facilities such as Precious Blood Children's Village and the Suen Douh Camp. These areas are susceptible to flooding during severe rainstorms. To alleviate the situation and facilitate future developments, we propose to replace the existing watercourse by box culverts.

6. Upon completion of the proposed works, the main drainage system serving catchment areas from Tung Kok Wai to San Wai will generally be improved to withstand rainstorms with a return period[1] of one in 50 years.

FINANCIAL IMPLICATIONS

7. We estimate the cost of the proposed works to be $57.9 million at MOD prices (see paragraph 8 below), made up as follows –

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[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	
(a)	Construction of box culverts	49.1	
(b)	Ancillary works	1.0	
(c)	Environmental mitigation measures	2.3	
(d)	Contingencies	5.5	
	Sub-total	57.9	(in September 2005 prices)
(e)	Provision for price adjustment	0.0	
	Total	57.9	(in MOD prices)

8. Subject to approval, we will phase expenditure as follows –

Year	**$ million (Sept 2005)**	**Price adjustment factor**	**$ million (MOD)**
2006 – 2007	22.1	1.00125	22.1
2007 – 2008	23.8	1.00125	23.8
2008 – 2009	7.0	1.00125	7.0
2009 – 2010	5.0	1.00125	5.0
	57.9		57.9

9. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period from 2006 to 2010. We will tender the proposed works under a remeasurement contract due to uncertainties associated with underground utilities such as electricity/telephone cables and water pipes. The contract will provide for price adjustments because the contract period will exceed 21 months.

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10. We estimate that the annual recurrent expenditure arising from this project will be about $100,000.

PUBLIC CONSULTATION

11. We consulted the North District Council on 19 March 2002 and secured support for the proposed works.

12. We gazetted the proposed drainage works under the Roads (Works, Use and Compensation) Ordinance on 7 and 14 May 2004. Of the two objections received, one was withdrawn unconditionally whilst the other was withdrawn on condition that the Government would not resume the land in return for granting of owner's consent for implementation of the project and subsequent maintenance. After considering the objection, the Chief Executive in Council authorised the works on 13 September 2005 with modification that the objector's land would not be resumed.

13. We consulted the Legislative Council Panel on Planning, Lands and Works by circulation of an information paper on 21 June 2005. Members did not raise any objection.

ENVIRONMENTAL IMPLICATIONS

14. The project is not a designated project under the Environmental Impact Assessment Ordinance and will not cause long-term adverse environmental impact. For short-term impacts caused by construction works, we will control noise, dust and site run-off within established standards and guidelines through implementation of mitigation measures, such as the use of temporary noise barriers, silenced construction equipment and water-spraying to reduce the generation of noise and dust. We will also carry out regular inspections to ensure that these recommended mitigation measures and good practices will be properly implemented on site. We have included $2.3 million (in September 2005 prices) in the project estimate for implementation of the environmental mitigation measures.

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15. We have considered possible ways in the planning and design stages of this project to reduce the generation of construction and demolition (C&D) materials. For example, we have determined alignment of the box culverts such that the least excavation and demolition of existing structures would be required, and have adopted standardised sections of reinforced concrete structures to minimise the use of formwork. In addition, we will require the contractor to reuse inert C&D materials (e.g. reuse of excavated material as filling material) either 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 facilities. We will encourage the contractor to maximise usage of recycled and recyclable C&D materials, as well as usage of non-timber formwork to further reduce the generation of construction waste.

16. We will also require the contractor to submit a waste management plan (WMP) for approval. The WMP will include mitigation measures (e.g. allocation of waste segregation area) to avoid, reduce and recycle C&D materials. We will ensure that the day-to-day operations on site comply with the approved WMP. We will control 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 contractors to separate public fill from C&D waste for disposal at appropriate facilities. We will also record the disposal, reuse and recycling of C&D materials for monitoring purposes.

17. We estimate that the project will generate about 36 100 tonnes of C&D materials. Of these, we will reuse about 9 700 tonnes (27%) on site, deliver 22 600 tonnes (63%) to public fill reception facilities[2] for subsequent reuse and dispose of 3 800 tonnes (10%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be about $1 million for this project (based on an unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[3] at landfills).

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[2] Public fill 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.

[3] The 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 is likely to be more expensive) when the existing ones are filled.

LAND ACQUISITION

18. We will resume about 4 185 square metres (m^2) of private agricultural land and clear 12 330 m^2 of government land for the proposed works. A total of four domestic structures with one household of three persons will be affected, and the Director of Housing will offer eligible families with public housing under existing policies. We will charge land resumption and clearance cost for the project, estimated to be about $13 million, to **Head 701 – Land Acquisition**.

BACKGROUND INFORMATION

19. In April 2002, we included **125CD** in Category B for the drainage improvement works from Tung Kok Wai to San Wai in Fanling.

20. We have substantially completed detailed design for the proposed works using in-house staff resources and plan to deploy in-house staff to supervise the construction works.

21. The proposed works will involve removal of 48 trees including 47 to be felled and one to be replanted within the project site. All trees to be removed are not important trees[4]. We will incorporate a planting proposal as part of the project, including the planting of about 50 trees.

22. We estimate that the proposed works will create about 52 jobs (45 for labourers and seven for professional/technical staff) providing a total employment of 1 100 man-months.

Environment, Transport and Works Bureau
February 2006

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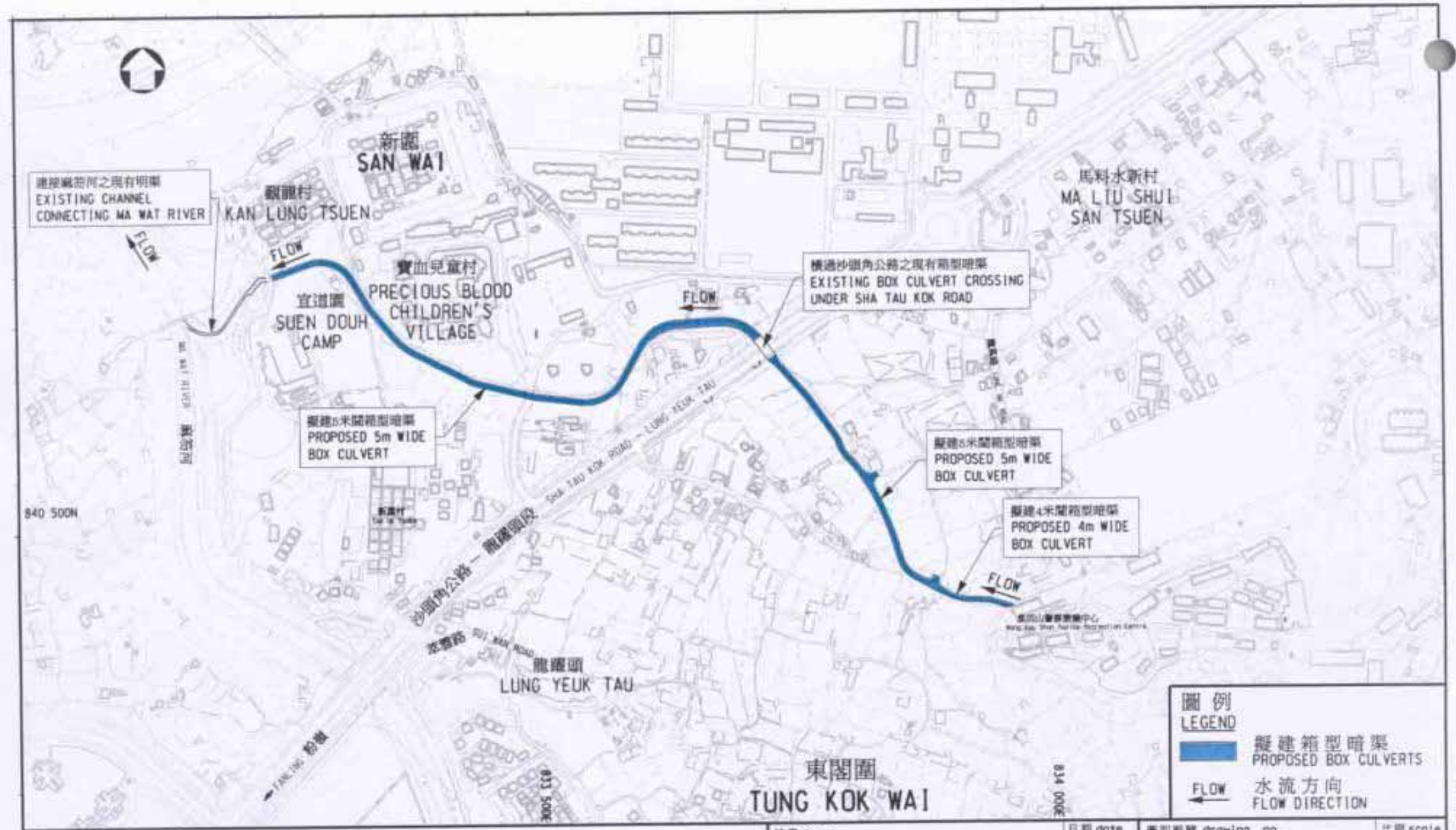
[4] Important trees include trees on the Register of Old and Valuable Trees, and any other trees which meet one or more of the following criteria –
(a) trees over 100 years old;
(b) trees of cultural, historical or memorable significance;
(c) trees of precious or rare species;
(d) trees of outstanding form; or
(e) trees with trunk diameter exceeding one metre (measured at one metre above ground level).



圖則名稱 drawing title

工務計劃項目第4125CD號
粉嶺東閣圍至新圍雨水排放系統改善工程

PWP ITEM No. 4125CD
DRAINAGE IMPROVEMENT FROM TUNG KOK WAI TO SAN WAI, FANLING

繪圖 drawn	C.L. CHEUNG	日期 date
核對 checked	C.H. YEE	日期 date
審核 vetted	B.K. KWOK	日期 date
部門 office	排水工程部 DRAINAGE PROJECTS DIVISION	

圖則編號 drawing no. DDN/125CD/0871

比例 scale 1 : 5 000

香港特別行政區政府渠務署
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE
HONG KONG
SPECIAL ADMINISTRATIVE REGION

ENCLOSURE 附件