

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

Head 704 – DRAINAGE

Civil Engineering – Drainage and erosion protection

92CD – Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 2B – Kam Tin

Members are invited to recommend to Finance
Committee –

- (a) the upgrading of part of **92CD**, entitled “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai”, to Category A at an estimated cost of \$155.6 million in money-of-the-day prices; and
- (b) the retention of the remainder of **92CD**, re-titled “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 2B – remaining works”, in Category B.

PROBLEM

Cheung Chun San Tsuen and Kam Tsin Wai in Yuen Long are low-lying areas which are susceptible to flooding during heavy rainstorms.

/PROPOSAL

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade part of **92CD** to Category A at an estimated cost of \$155.6 million in money-of-the-day (MOD) prices for the construction of drainage channels in Cheung Chun San Tsuen and Kam Tsin Wai in Yuen Long.

PROJECT SCOPE AND NATURE

3. The part of **92CD** that we now propose to upgrade to Category A comprises –

- (a) construction of about 1.3 kilometres (km) of drainage channel and provision of ancillary works in Cheung Chun San Tsuen; and
- (b) construction of about 0.8 km of drainage channel and provision of ancillary works in Kam Tsin Wai.

— A site plan and a typical cross section showing the proposed works are at Enclosure 1.

4. We plan to commence construction in May 2007 for completion in December 2009.

JUSTIFICATION

5. Owing to the inadequate capacity of existing streamcourses, the low-lying areas of Cheung Chun San Tsuen and Kam Tsin Wai are susceptible to frequent flooding during heavy rainstorms. Moreover, changes in land use in the areas over the years have resulted in tracts of natural ground being replaced by impermeable pavings. Rainwater which would previously dissipate naturally through ground infiltration can no longer do so. This has led to an increase in surface run-off and aggravated the extent of flooding in the areas.

6. To alleviate the flooding risks in the areas concerned, we propose to provide drainage channels in Cheung Chun San Tsuen and Kam Tsin Wai, enhancing the flood protection standard to generally withstand rainstorms with a return period¹ of one in 50 years.

/FINANCIAL

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.

FINANCIAL IMPLICATIONS

7. We estimate the cost of the proposed works to be \$155.6 million in MOD prices (see paragraph 8 below), made up as follows –

	\$ million	
(a) Drainage improvement works and ancillary works at –	121.5	
(i) Cheung Chun San Tsuen	94.2	
(ii) Kam Tsin Wai	27.3	
(b) Consultants' fees for	12.0	
(i) contract administration	0.6	
(ii) site supervision	11.4	
(c) Environmental mitigation measures	3.0	
(d) Contingencies	13.0	
Sub-total	149.5	(in September 2006 prices)
(e) Provision for price adjustment	6.1	
Total	155.6	(in MOD prices)

_____ A breakdown of the estimates for the consultants' fees by man-months is at Enclosure 2.

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

/2007 – 2008

Year	\$ million (Sept 2006)	Price adjustment factor	\$ million (MOD)
2007 – 2008	30.0	1.01250	30.4
2008 – 2009	40.0	1.02769	41.1
2009 – 2010	40.0	1.04310	41.7
2010 – 2011	17.0	1.05875	18.0
2011 - 2012	22.5	1.08257	24.4
	149.5		155.6

9. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of changes in the prices of public sector building and construction output for the period from 2007 to 2012. We will tender the works under a standard re-measurement contract because of the uncertainties of the existence and alignment of the utilities and the ground condition. The contract will provide for price adjustments because the contract period will exceed 21 months.

10. We estimate the annual recurrent expenditure arising from this project to be about \$774,000.

PUBLIC CONSULTATION

11. We consulted the Kam Tin Rural Committee, the Town Planning and Development Committee under the Yuen Long District Council and the Pat Heung Rural Committee on 30 April, 14 July and 17 July 2004 respectively. All supported the implementation of the proposed works.

12. We gazetted the proposed works under the Foreshore and Seabed (Reclamations) Ordinance and the Roads (Works, Use and Compensation) Ordinance on 17 June 2005. We did not receive any objection under the Foreshore and Seabed (Reclamations) Ordinance. We received four objections under the Roads (Works, Use and Compensation) Ordinance. Two objectors

/requested

requested the alignment of the drainage channel be shifted to avoid resumption of their lots. One objector requested the whole of his lot be resumed and the remaining objector requested for compensation of his facilities. We held meetings with the objectors in August 2005. After our explanations, all four objectors withdrew their objections unconditionally in September 2005. The road scheme was authorised on 1 December 2005.

13. We consulted the Legislative Council Panel on Planning, Lands and Works on the proposed works by circulation of an information paper on 18 February 2006. Members raised no objection to the proposed works.

ENVIRONMENTAL IMPLICATIONS

14. The proposed drainage improvement works in Kam Tsin Wai is a designated project whereas the proposed works in Cheung Chun San Tsuen is not a designated project under the Environmental Impact Assessment (EIA) Ordinance. We completed the Project Profile (PP) for the proposed works in Kam Tsin Wai for the application for permission to apply directly for an environmental permit under the EIA Ordinance and obtained the environmental permit in November 2005. We also completed the Environmental Study (ES) covering the proposed works in Cheung Chun San Tsuen. Both the PP and the ES concluded that the environmental impacts arising from the proposed works could be mitigated within established standards and guidelines with full implementation of the recommended mitigation measures. We will implement the mitigation measures as recommended.

15. 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 in the works contract, such as the use of temporary noise barriers and silenced construction plant to reduce noise generation, water-spraying to reduce emission of fugitive dust. We have included \$3.0 million (in September 2006 prices) in the project estimates for implementing the environmental mitigation measures.

16. We have considered ways in the planning and design stages to reduce the generation of construction and demolition (C&D) materials where possible. In addition, we will require the contractor to reuse inert 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

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.

will encourage the contractors to maximise the use of recycled or recyclable C&D materials, as well as the use of non-timber formwork to further minimise the generation of construction waste.

17. 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.

18. We estimate that the project will generate about 153 500 tonnes of C&D materials. Of these, we will reuse about 86 500 tonnes (56.4%) on site, deliver 66 600 tonnes (43.4%) to public fill reception facilities for subsequent reuse and dispose of 400 tonnes (0.2%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be about \$1.8 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonnes³ at landfill.).

19. We estimate that the project will generate about 16 500 tonnes of uncontaminated mud and 24 600 tonnes of contaminated mud to be excavated from the watercourses. We will deliver the uncontaminated mud by barges to the marine disposal areas. Of the 24 600 tonnes of contaminated mud, we will deliver some 18 600 tonnes by barges to the contaminated mud disposal area at the East Sha Chau and reuse the remaining 6 000 tonnes after treatment.

LAND ACQUISITION

20. We will resume about 32 000 square metres (m²) of private agricultural land and clear 33 000 m² of government land for the proposed works. The land resumption will affect two families comprising four persons and three temporary domestic structures. The Director of Housing will arrange re-housing for the affected families in accordance with the current policy. We

/will

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 is likely to be more expensive) when the existing ones are filled.

will charge the land resumption and clearance costs estimated to be about \$80.5 million, comprising \$74.5 million for land resumption and \$6 million for clearance, to **Head 701 - Land Acquisition**.

BACKGROUND INFORMATION

21. We commissioned **83CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage master plan study” in January 1996 to assess the adequacy of the existing drainage systems and tributaries in the areas. The final study was completed in December 1998 and has identified a series of drainage improvement works.

22. In September 1998, we included **92CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1” in Category B.

23. In March 1999, we upgraded part of **92CD** to Category A as **96CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1 – consultants’ fees and site investigations” at an estimated cost of \$20.6 million in MOD prices for engaging consultants to carry out impact assessments, site investigations and detailed design for the stage 1 drainage improvement works.

24. In June 2001, we upgraded part of **92CD** to Category A as **114CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 1 – Yuen Long and Tin Shui Wai” at an estimated cost of \$210.7 million in MOD prices. We started the works in December 2001 and completed them in November 2005.

25. In June 2003, we upgraded part of **92CD** to Category A as **133CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 2A – Kam Tin and Ngau Tam Mei” at an estimated cost of \$139.3 million in MOD prices. We started the works in June 2004 for completion in February 2007.

26. Of the 379 trees within the project boundary, 129 trees will be preserved. The proposed works will involve the removal of 250 common trees

/including

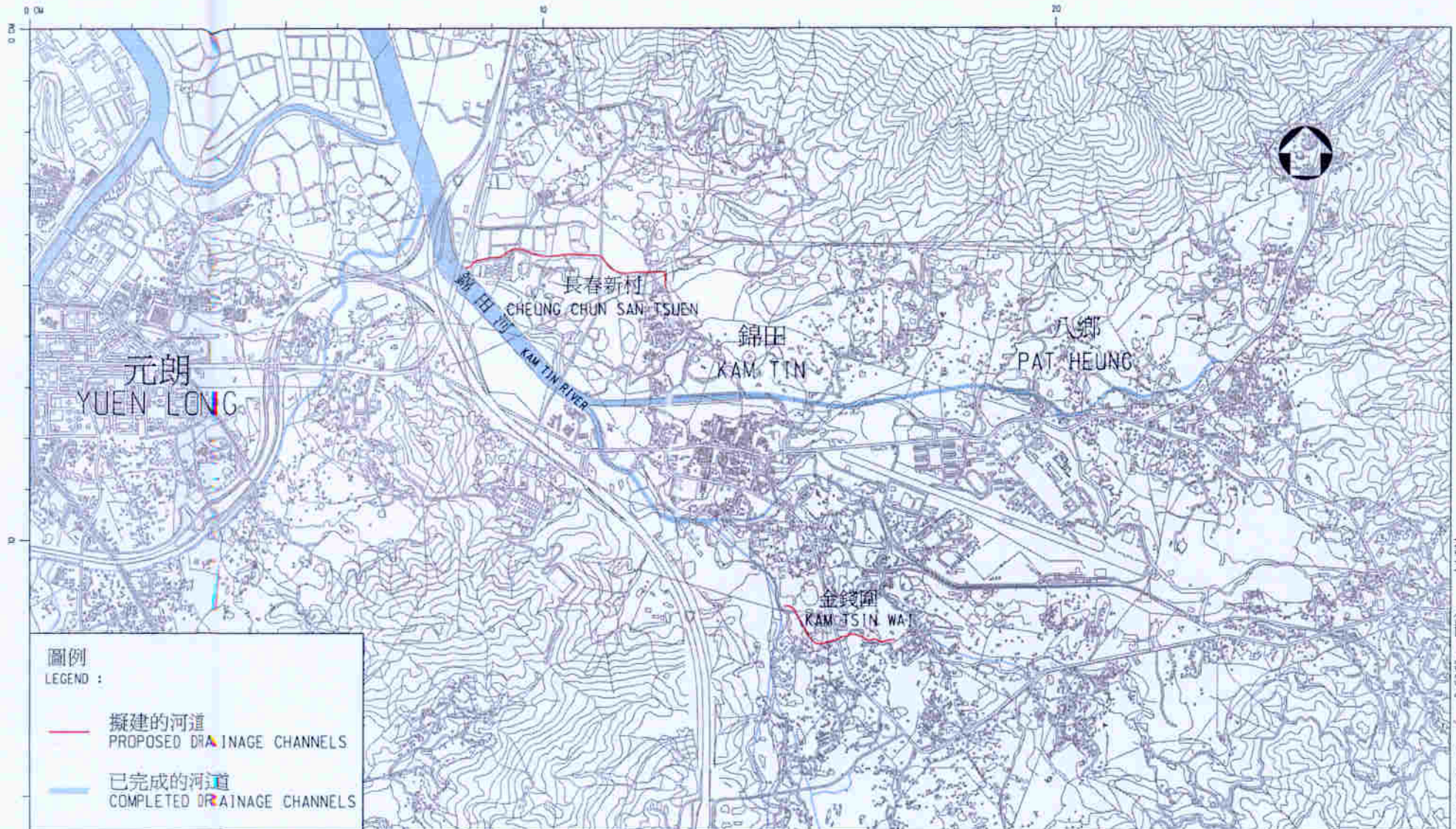
including 144 trees to be felled and 106 trees to be replanted within the project site. All trees to be removed are not important trees⁴. We will incorporate planting proposal as part of the project, including estimated quantities of 350 trees.

27. We estimate that the proposed works will create about 85 jobs (69 for labourers and another 16 for professional/technical staff) providing a total employment of 2 300 man-months.

Environment, Transport and Works Bureau
December 2006

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 an important person 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 m (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.



圖例
LEGEND :

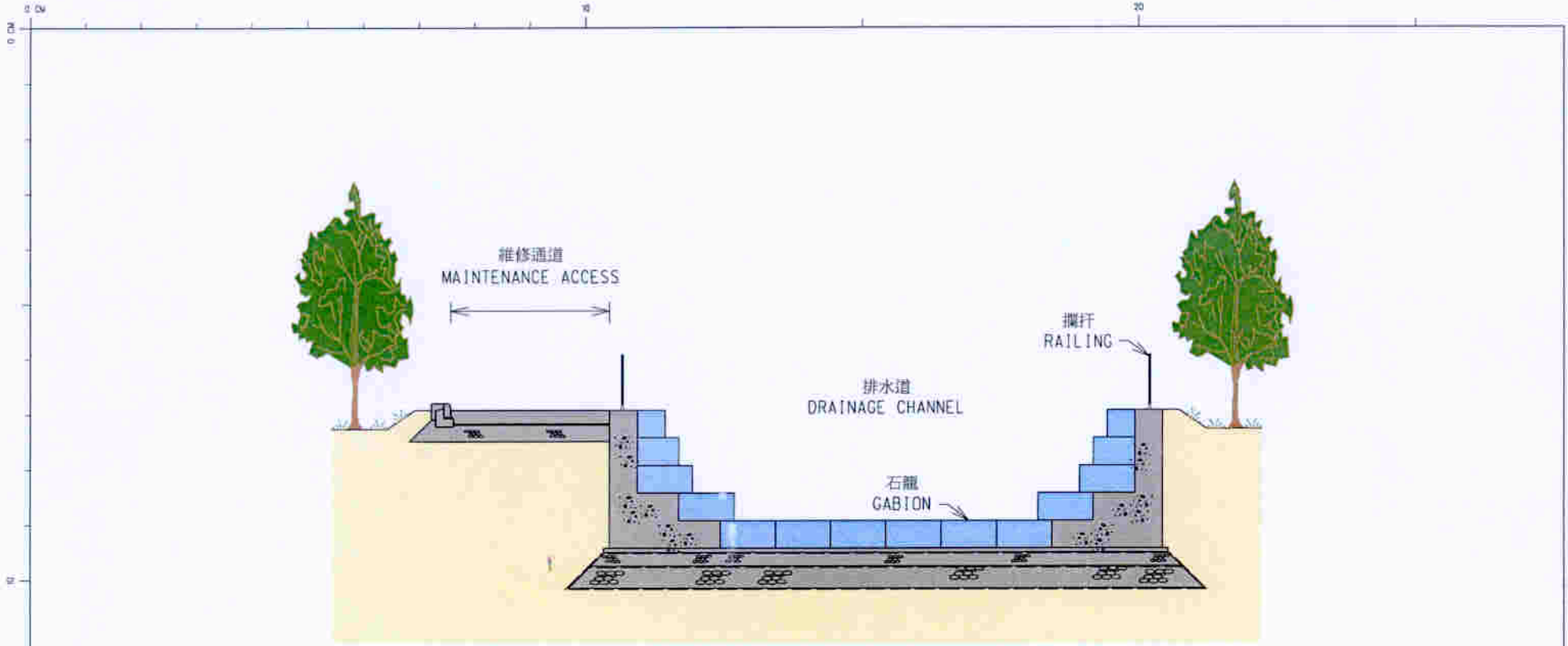
- 擬建的河道
PROPOSED DRAINAGE CHANNELS
- 已完成的河道
COMPLETED DRAINAGE CHANNELS

圖則名稱 drawing title

元朗、錦田、牛潭尾及天水圍雨水排放系統改善計劃
第1階段第2B期 - 長春新村及金錢圍
YUEN LONG, KAM TIN, NGAU TAM MEI AND TIN SHUI WAI
DRAINAGE IMPROVEMENTS, STAGE 1, PHASE 2B
- CHEUNG CHUN SAN TSUEN AND KAM TSIN WAI

繪圖 drawn	SIGNED C.K.LAM	日期 date	30MAR06
核對 checked	SIGNED C.C.CHIU	日期 date	30MAR06
批核 approved	SIGNED Y.K.HO	日期 date	30MAR06
部門 office	工程管理部 PROJECT MANAGEMENT DIVISION		

圖則編號 drawing no.	比例 scale
SK-T6-06-012	N. T. S.
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典型橫切面
TYPICAL CROSS SECTION

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 元朗、錦田、牛潭尾及天水圍雨水排放系統改善計劃
 第1階段第2B期 - 長春新村及金錢圍
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繪圖 drawn SIGNED C.K.LAM 日期 date 30MAR06
 核對 checked SIGNED C.C.CHIU 日期 date 30MAR06
 批准 approved SIGNED Y.K.HO 日期 date 30MAR06
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 DRAINAGE SERVICES DEPARTMENT
 GOVERNMENT OF THE
 HONG KONG
 SPECIAL ADMINISTRATIVE REGION

**92CD – Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai
drainage improvements, stage 1, phase 2B – Kam Tin**

Breakdown of the estimates for consultants' fees

Consultants' staff costs			Estimated man-months	Average MPS* salary point	Multiplier (note 1)	Estimated fee (\$ million)
(a)	Contract administration (Note 2)	Professional	-	-	-	0.4
		Technical	-	-	-	0.2
(b)	Site supervision by resident site staff of the consultants (Note 3)	Professional	43	38	1.6	3.7
		Technical	268	14	1.6	7.7
Total consultants' staff costs						12.0

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (As at 1 January 2006, MPS point 38 = \$54,255 per month and MPS point 14 = \$18,010 per month)
2. The consultants' fees for contract administration are based on the lump sum fees calculated in accordance with the consultancy agreement which the Director of Drainage Services has agreed with the consultants undertaking the design and construction of the project. The construction phase of the assignment for the proposed works will only be executed upon Finance Committee's approval to upgrade the proposed works to Category A.
3. We will only know the actual man-months and actual costs after the completion of the construction works.