

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 709 - WATERWORKS

Water Supplies - Fresh water supplies

236WF - Mainlaying between Kam Tin Shi and Route Twisk Roundabout

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **236WF**, entitled “Mainlaying between Kam Tin Shi and Route Twisk Roundabout – mainlaying along Kam Tin Bypass”, to Category A at an estimated cost of \$19.3 million in money-of-the-day prices; and
- (b) the retention of the remainder of **236WF** in Category B.

PROBLEM

By end 2006, the water supply system serving the Au Tau and Kam Tin area will not be able to cope with the anticipated increase in water demand arising from planned developments¹ in the area.

PROPOSAL

2. The Director of Water Supplies (DWS), with the support of the Secretary for Works, proposes to upgrade part of **236WF** to Category A at an estimated cost of \$19.3 million in money-of-the-day (MOD) prices for the expansion of the water supply system in the Au Tau and Kam Tin area.

/PROJECT

¹ The planned developments there are mainly residential in nature.

PROJECT SCOPE AND NATURE

3. The full scope of works under **236WF** comprises the laying of about 5.4 kilometres of fresh water mains, about 700 millimetres in diameter, between Kam Tin Shi and Route Twisk Roundabout along the existing Kam Tin Road and the proposed Kam Tin Bypass to be constructed under **246TH** "Kam Tin Bypass".
----- A site plan showing the full scope of works under **236WF** is at Enclosure 1.

4. The part of **236WF** we now propose to upgrade to Category A comprises the laying of about 1.4 kilometres of fresh water mains along the proposed Kam Tin Bypass. A site plan showing the proposed works is at Enclosure 2.

5. To tie in with the roadworks programme under **246TH**, we intend to commence the proposed mainlaying works in June 2001 for completion by December 2003.

JUSTIFICATION

6. The existing fresh water supply system serving the Au Tau and Kam Tin area has a capacity of about 32 000 cubic metres (m³) per day. Given the anticipated development in the area, we envisage that the population will increase from the current 35 000 to 62 000 in 2006, and further to 107 000 in 2009. Together with the demand arising from the planned commercial developments, we expect that the daily fresh water demand will increase from the current level of 19 400m³ to 31 800m³ in 2006, and further to 53 000m³ in 2009. To meet anticipated growth in water demand up to 2009, we plan to expand the existing fresh water supply system in the area as set out in paragraph 3 above.

7. The Director of Highways (D of Hy) will undertake a roadworks project under **246TH**² "Kam Tin Bypass" for the construction of a new road along Kam Tin Road between Kam Tin Shi and Kiu Tau Tsuen. The mainlaying works under **236WF** described in paragraph 4 above fall within the project boundaries of **246TH**. To avoid repetitive road opening and interface problems arising from two contractors working on the same site, we propose that this part of **236WF** be incorporated into the roadworks contract under **246TH**.

/FINANCIAL

² A related paper, PWSC(2000-01)76, for the upgrading of **246TH** under **Head 706** to Category A is also submitted for Members' consideration at this meeting. D of Hy plans to start the roadworks in June 2001 for completion in December 2003.

FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the proposed works to be \$19.3 million in MOD prices (see paragraph 9 below), made up as follows -

	\$ million	
(a) Pipe materials	3.1	
(b) Mainlaying	10.9	
(c) Consultants' fees for contract administration	0.1	
(d) Resident site staff costs	2.2	
(e) Environmental mitigation measures	0.1	
(f) Contingencies	1.6	
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Sub-total	18.0	(in September 2000 prices)
(g) Provision for price adjustment	1.3	
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Total	19.3	(in MOD prices)

A breakdown of the estimate for consultants' fees and resident site staff costs by man-months is at Enclosure 3.

9. Subject to approval, we will phase the expenditure as follows -

Year	\$ million (Sept 2000)	Price adjustment factor	\$ million (MOD)
2001 - 2002	1.0	1.02550	1.0
2002 - 2003	6.1	1.05627	6.4
2003 - 2004	8.5	1.08795	9.2
2004 - 2005	1.8	1.12059	2.0

Year	\$ million (Sept 2000)	Price adjustment factor	\$ million (MOD)
2005 - 2006	0.6	1.15421	0.7
	<u>18.0</u>		<u>19.3</u>

10. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 2001 to 2006. We will incorporate the proposed mainlaying works into D of Hy's roadworks contract, which will be a standard remeasurement contract because the quantities of the works are subject to variation during construction to suit the actual site conditions. We have carried out ground investigation works to gather detailed information on soil components and alignment of existing utilities so as to reduce the uncertainty in respect of ground conditions. We will provide for price adjustments in the contract because the contract period will exceed 21 months.

11. We estimate the annually recurrent expenditure arising from this project to be \$87,000.

12. This project by itself will lead to an increase in water charges by 0.01% in real terms by 2006³.

PUBLIC CONSULTATION

13. We consulted the Town Planning and Development Committee of Yuen Long District Council on 17 May 2000. The Committee supported the project.

ENVIRONMENTAL IMPLICATIONS

14. The Director of Environmental Protection (DEP) vetted the Preliminary Environmental Review (PER) for **236WF** conducted by DWS in February 1998. The PER concluded that the project would not cause long-term environmental impact and Environmental Impact Assessment would not be

/required

³ The increase in water charges is calculated on the assumption that the demand remains static during the period from 2000 to 2006 and the amount of government subsidy to the waterworks operations is to be contained at the present level.

required. For short term environmental impacts, we will control noise, dust and site run-off during construction to comply with established standards and guidelines through the implementation of mitigation measures⁴ in the contracts. For this part of the project, the cost of implementing these mitigation measures is estimated to be \$100,000 in September 2000 prices and we have included this amount in the project estimate.

15. We have considered the alignment of the proposed water mains in the planning and design stages with a view to minimizing the generation of construction and demolition (C&D) materials. We estimate that about 2 780m³ of C&D materials will be generated by the project. Of these, about 2 630m³ (94.6%) will be reused on site and 150m³ (5.4%) will be disposed of at landfills. This project will not generate any materials for reuse as fill in public filling areas. We will require the contractor to implement necessary measures to minimize the generation of C&D materials and to reuse and recycle such materials as far as possible. We will control the disposal of C&D waste at designated landfills through a trip-ticket system. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes.

LAND ACQUISITION

16. The proposed mainlaying works fall within road reserves and do not require any land acquisition.

BACKGROUND INFORMATION

17. We upgraded **236WF** to Category B in September 1998. DWS has completed the detailed design for the mainlaying works we now propose to upgrade to Category A by engaging consultants. The associated cost of \$235,000 has been charged to the block allocation **Subhead 9100WX** "Waterworks, studies and investigations for items in Category D of the Public Works Programme".

18. DWS is currently designing the remaining works under **236WF** with a view to starting the mainlaying in October 2002 for completion in December 2006.

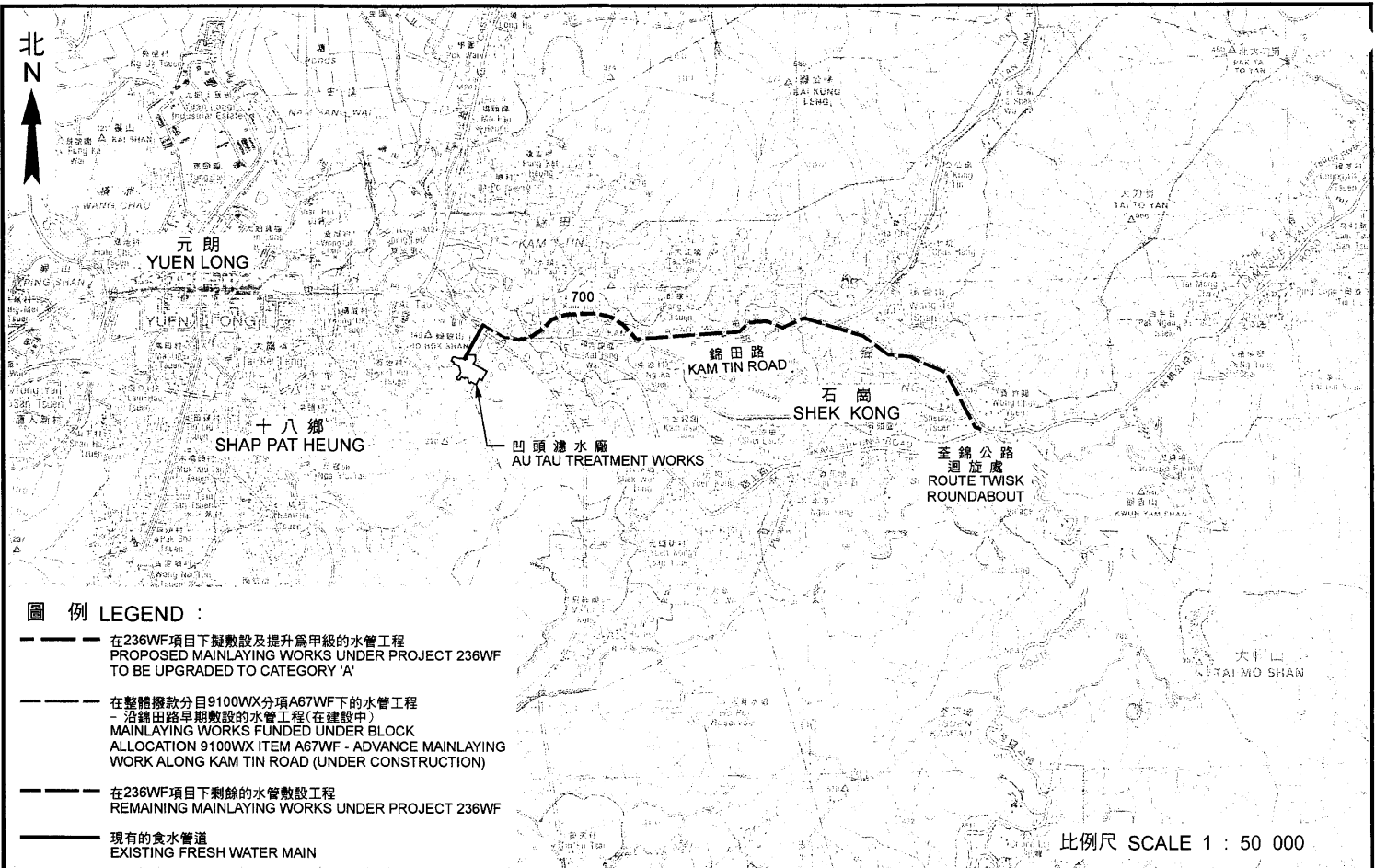
/19.

⁴ The standard pollution control measures include wheel washing facilities, de-silting traps, the use of silenced plant and other procedures as recommended in the Environmental Protection Department's Recommended Pollution Control Clauses.

19. We estimate that the proposed works will create some 13 new jobs during the construction stage. These comprise three professional/technical staff and ten labourers, totalling 390 man-months.

Works Bureau
December 2000

(wf236finv1.doc)



圖例 LEGEND :

- 在236WF項目下擬敷設及提升為甲級的水管工程
 PROPOSED MAINLAYING WORKS UNDER PROJECT 236WF
 TO BE UPGRADED TO CATEGORY 'A'
- 在整體撥款分目9100WX分項A67WF下的水管工程
 - 沿錦田路早期敷設的水管工程(在建設中)
 MAINLAYING WORKS FUNDED UNDER BLOCK
 ALLOCATION 9100WX ITEM A67WF - ADVANCE MAINLAYING
 WORK ALONG KAM TIN ROAD (UNDER CONSTRUCTION)
- 在236WF項目下剩餘的水管敷設工程
 REMAINING MAINLAYING WORKS UNDER PROJECT 236WF
- 現有的食水管道
 EXISTING FRESH WATER MAIN

比例尺 SCALE 1 : 50 000

核准 APPROVED

 總工程師/設計 CE / Des
 26/10/2000

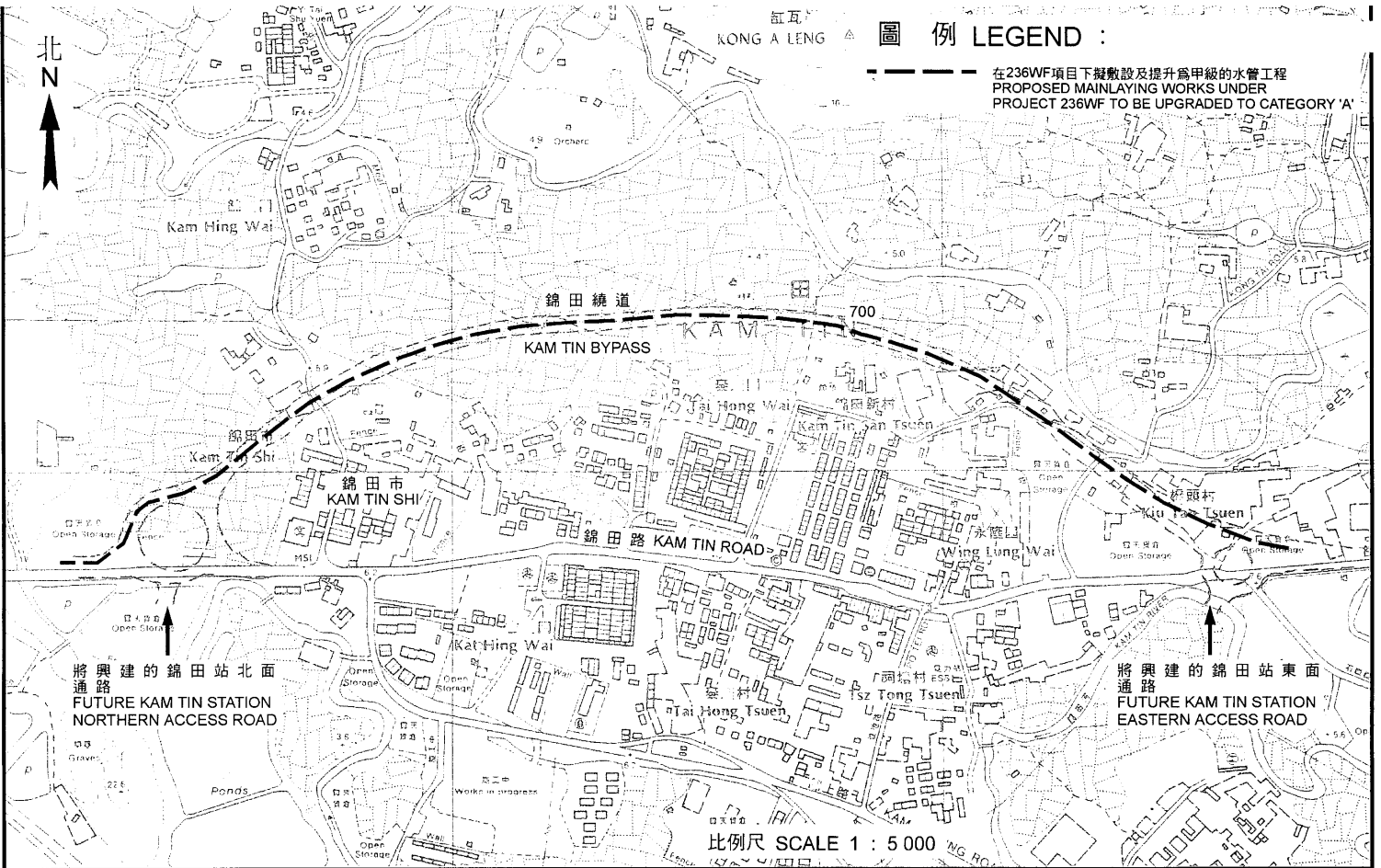
工務計劃項目第236號 — 錦田市至荃錦公路迴旋處的水管敷設工程
 沿錦田繞道的水管敷設工程
 PWP ITEM NO. 236WF — MAINLAYING BETWEEN KAM TIN SHI AND ROUTE TWISK ROUNDABOUT
 MAINLAYING ALONG KAM TIN BYPASS
 (甲級工程)
 (CAT 'A' Submission)

水務署
 WATER SUPPLIES DEPT.
 草圖編號
 SKETCH NO. SK 62000 / 082 / 002



圖例 LEGEND :

在236WF項目下擬敷設及提升為甲級的水管工程
PROPOSED MAINLAYING WORKS UNDER
PROJECT 236WF TO BE UPGRADED TO CATEGORY 'A'



比例尺 SCALE 1 : 5 000

核准 APPROVED

總工程師/設計 CE / Des
26/10/2000

工務計劃項目第236號 — 錦田市至荃錦公路迴旋處的水管敷設工程
沿錦田繞道的水管敷設工程
PWP ITEM NO. 236WF — MAINLAYING BETWEEN KAM TIN SHI AND ROUTE TWISK ROUNDABOUT
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(甲級工程)
(CAT 'A' Submission)

 水務署
WATER SUPPLIES DEPT.
草圖編號 SK 62000 / 082 / 001
SKETCH NO.

236WF - Mainlaying between Kam Tin Shi and Route Twisk Roundabout

Breakdown of estimates for consultants' fees

Consultants' staff costs			Estimated man-months	Average MPS* salary point	Multiplier factor	Estimated fee (\$ million)
(a)	Contract administration	Professional	0.7	38	2.4	0.10
		Technical	0.2	14	2.4	0.01
(b)	Site supervision by resident site staff employed by the consultants	Professional	8.0	38	1.7	0.78
		Technical	42.3	14	1.7	1.37
Total consultants' staff costs						2.26

* MPS = Master Pay Scale

Notes

1. A multiplier factor of 2.4 is applied to the average MPS point to arrive at the full staff cost including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. (At 1.4.2000, MPS pt. 38 = \$57,525 per month and MPS pt. 14 = \$19,055 per month). A multiplier factor of 1.7 is applied to the average MPS point in the case of site staff supplied by the consultants.
2. The above figures are based on estimates prepared by the Director of Water Supplies. The consultancy works for this project will be included as part of the Agreement No. CE7/94 "Design and Construction Consultancy for Kam Tin Bypass". The assignment will only be triggered subject to Finance Committee's agreement to partially upgrade **236WF** to Category A as proposed.