

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 709 - WATERWORKS

#### Water Supplies - Fresh water supplies

#### 34WF - Additional trunk transfer facilities between Tan Kwai Tsuen and Tuen Mun

Members are invited to recommend to Finance Committee the upgrading of **34WF** to Category A at an estimated cost of \$214.39 million in money-of-the-day prices.

### PROBLEM

By end 2003, the capacity of the Tuen Mun treatment works will not be able to meet the growing fresh water demand generated from planned developments in the Tuen Mun area.

### PROPOSAL

2. The Director of Water Supplies (DWS), with the support of the Secretary for Works, proposes to upgrade **34WF** to Category A at an estimated cost of \$214.39 million in money-of-the-day (MOD) prices for the construction of additional trunk transfer facilities between Tan Kwai Tsuen and Tuen Mun.

### PROJECT SCOPE AND NATURE

3. The scope of works under **34WF** comprises -

- (a) construction of a pumping station at Tan Kwai Tsuen with a capacity of 242 400 cubic metres per day; and
- (b) laying of approximately 2.9 kilometres of 1 400 millimetres diameter fresh water trunk main between the proposed pumping station at Tan Kwai Tsuen and Tuen Mun.

## JUSTIFICATION

4. In view of the rapid developments in the Tuen Mun area, we envisage that the population currently served by the Tuen Mun treatment works will increase from the current level of 405 000 to 497 000 in 2003 and to 634 000 in 2008. Together with other planned industrial and commercial developments, we expect that the daily fresh water demand will increase from the current level of 236 000 cubic metres to 294 000 in 2003 and to 434 000 in 2008.

5. The existing Tuen Mun treatment works will not be able to cope with the increase in fresh water demand by end 2003. We need to provide a trunk main of about 11 kilometres long and the related facilities to transfer fresh water from the existing Au Tau treatment works in Yuen Long to Tan Kwai Tsuen for further distribution to the Tuen Mun area. We are carrying out the works under two projects - project **227WF** covers the works from Au Tau to Shan Ha Road and project **34WF** covers the remaining part from Shan Ha Road to Tuen Mun Road. We are carrying out the project in several phases to tie in with various roadworks and mainlaying programmes. The proposed works form the last phase of project **34WF** while the last phase of an inter-related project **227WF** will start in late 2000. We aim at completing both projects in early 2003. Details of the other phases are shown in paragraphs 6 and 7 below.

6. For the section of trunk main between the Au Tau treatment works and Tan Kwai Tsuen, we upgraded two phases of the works to Category A as **233WF**<sup>1</sup> “Mainlaying between Au Tau treatment works and Yuen Long Town - advance work near Fung Yau Street East” and **234WF**<sup>2</sup> “Mainlaying between

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Yuen Long and Tan Kwai Tsuen” in late 1997 for the laying of about 500 metres

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<sup>1</sup> We commenced the works of **233WF** in June 1998 for completion in May 1999.

<sup>2</sup> We commenced the works of **234WF** in May 1998 for completion in October 2000.

trunk main along Fung Yau Street and of about 2.9 kilometres trunk main between Shan Ha Road and Tan Kwai Tsuen respectively. In February 1999, we further upgraded part of the project to Category A as **242WF**<sup>3</sup> “Mainlaying between Au Tau treatment works and Yuen Long Town - advance mainlaying work along Kam Tin Road” for the laying of about 730 metres trunk main along Kam Tin Road. We plan to commence the works for the remaining sections of the trunk main between Au Tau and Tan Kwai Tsuen in late 2000 for completion in early 2003.

7. As for the additional trunk transfer facilities between Tan Kwai Tsuen and Tuen Mun, we upgraded part of the project to Category A as **229WF**<sup>4</sup> “Tan Kwai Tsuen fresh water service reservoir stage 2 and mainlaying works in Tuen Mun area 52” in January 1997 for the laying of about 600 metres trunk main in Tuen Mun area 52. We also constructed a small section of the trunk main across Shun Tat Street as advance work under Category D item **67AWF**<sup>5</sup>. To cope with the projected growth in water demand mentioned in paragraph 4 above, we propose the construction of a pumping station at Tan Kwai Tsuen and the laying of the remaining part of the trunk main between the proposed pumping station and Tuen Mun.

## FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the project to be \$214.39 million in MOD prices (see paragraph 9 below), made up as follows -

	<b>\$ million</b>
(a) Construction of the Tan Kwai Tsuen fresh water pumping station	90.53

/(i) .....  
**\$ million**

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<sup>3</sup> We plan to commence the works of **242WF** in April 1999 for completion in October 2001.

<sup>4</sup> We commenced the works of **229WF** in March 1997 for completion in December 1999. Apart from laying the trunk main, **229WF** also includes the construction of the Tan Kwai Tsuen fresh water service reservoir stage 2.

<sup>5</sup> We completed the works of **67AWF** in October 1998.

(i)	civil works	48.16	
(ii)	mechanical and electrical works	42.37	
(b)	Construction of pipeline (civil works)		84.63
(i)	pipe material	23.97	
(ii)	mainlaying	60.66	
(c)	Contingencies		17.51
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	Sub-total	192.67	(at December 1998 prices)
(d)	Provision for price adjustment		21.72
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	Total	214.39	(in MOD prices)
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9. Subject to approval, we will phase the expenditure as follows -

Year	\$ million (Dec 1998)	Price adjustment factor	\$ million (MOD)
1999 - 2000	8.50	1.02625	8.72
2000 - 01	41.66	1.06217	44.25
2001 - 02	67.84	1.09934	74.58
2002 - 03	42.46	1.13782	48.31

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\$ million	Price adjustment factor	\$ million
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Year	(Dec 1998)		(MOD)
2003 - 04	17.58	1.17765	20.70
2004 - 05	14.63	1.21886	17.83
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	192.67		214.39
	—————		—————

10. We derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 1999 to 2005. We will invite tenders for the supply of mechanical and electrical plant under fixed-price lump-sum contracts. We will invite tenders for the civil works under remeasurement contracts because the quantities of the works may vary with the actual ground conditions. We will allow for price adjustments in the civil works contracts because their construction periods will be longer than 21 months.

11. We estimate the additional annually recurrent expenditure arising from this project to be \$11.965 million.

12. This project by itself would lead to an increase in water charges by 0.35% in real terms by 2005<sup>6</sup>.

## PUBLIC CONSULTATION

13. We consulted the Environmental Improvement and District Development Committee (EIDDC) of the Tuen Mun District Board (TMDB) on 12 July 1996. The Committee supported the project and requested us to closely monitor the works and strictly enforce the contract provisions to ensure that the traffic in the vicinity would not be adversely affected during the construction

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period. We will address EIDDC's concern by incorporating the relevant clauses into the works contracts and closely supervising the construction activities of the contractors. We also consulted the Environmental Improvement Committee of the

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<sup>6</sup> The increase in water charges is calculated on the assumption that the water demand remains static during the period from 1998 to 2005 and the amount of Government subsidy in the waterworks operations to be contained at the present level.

Yuen Long District Board on 24 July 1996 and the Committee supported the project.

#### **ENVIRONMENTAL IMPLICATIONS**

14. The Director of Environmental Protection completed an environmental review in December 1994 and concluded that the project would have no long term adverse environmental impact and no environmental impact assessment would be necessary. We will control noise, dust and site run-off nuisances during construction to comply with established standards and guidelines by incorporating relevant environmental pollution control clauses in the works contracts.

#### **LAND ACQUISITION**

15. We will clear about 3 500 square metres of government land for the construction of the Tan Kwai Tsuen fresh water pumping station. The clearance will not affect any households. We will charge the estimated clearance cost of \$100,000 to **Head 701** - Land Acquisition.

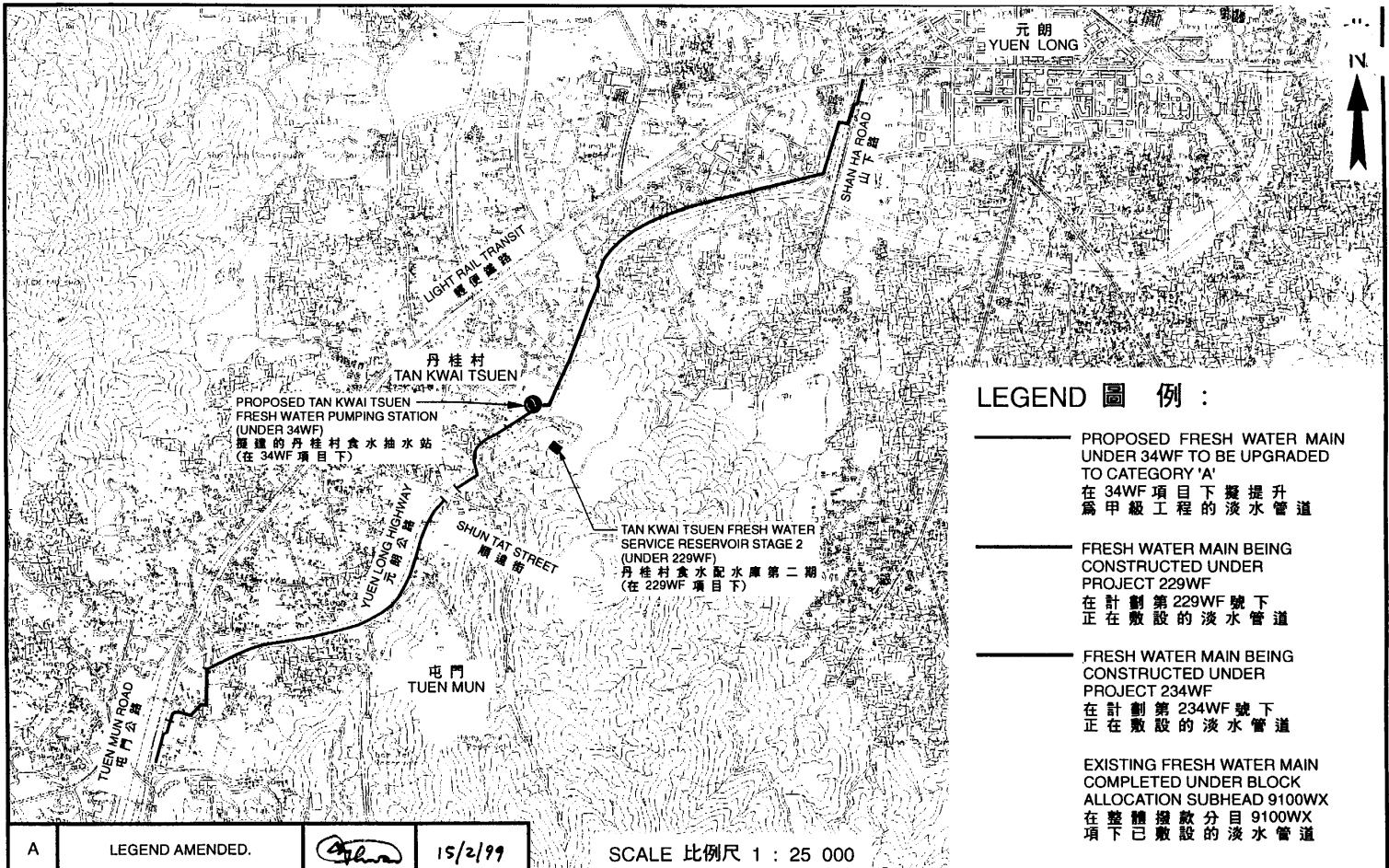
#### **BACKGROUND INFORMATION**

16. We upgraded **34WF** to Category B in September 1995. As regards the works which we now propose to upgrade to Category A, DWS has completed the detailed design using in-house resources. We plan to commence the proposed works in October 1999 for completion in early 2003.

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Works Bureau  
May 1999

(PWSC0090/WIN3)



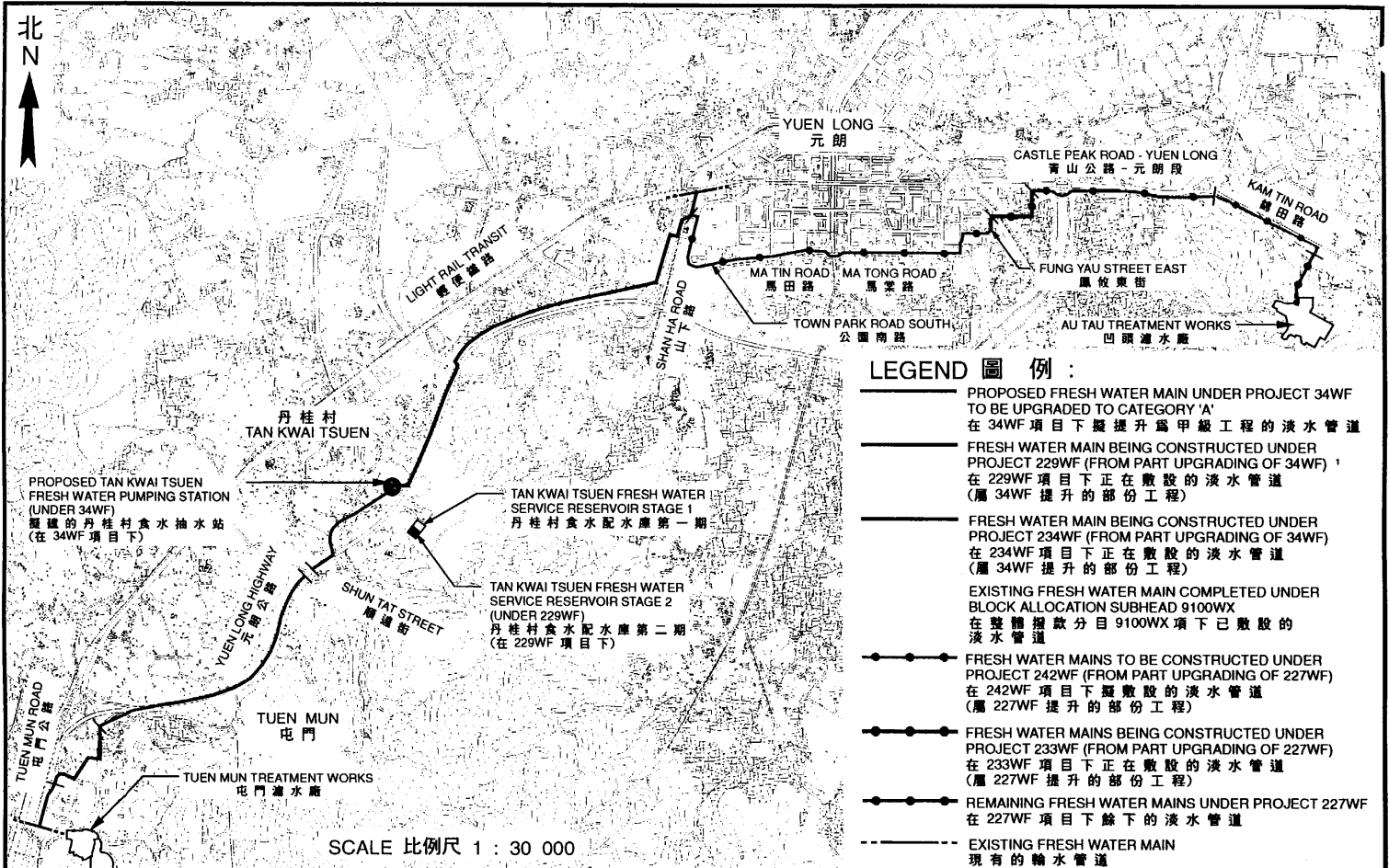
**LEGEND 圖例：**

- PROPOSED FRESH WATER MAIN UNDER 34WF TO BE UPGRADED TO CATEGORY 'A'  
 在 34WF 項目下擬提升為甲級工程的淡水管道
  
- FRESH WATER MAIN BEING CONSTRUCTED UNDER PROJECT 229WF  
 在計劃第 229WF 號下正在敷設的淡水管道
  
- FRESH WATER MAIN BEING CONSTRUCTED UNDER PROJECT 234WF  
 在計劃第 234WF 號下正在敷設的淡水管道
  
- EXISTING FRESH WATER MAIN COMPLETED UNDER BLOCK ALLOCATION SUBHEAD 9100WX  
 在整體撥款分目 9100WX 項下已敷設的淡水管道

A	LEGEND AMENDED.	<i>Wahon</i>	15/2/99
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SCALE 比例尺 1 : 25 000

APPROVED <i>Wahon</i> CE / Des 8/9/98	P.W.P. ITEM NO.34WF — ADDITIONAL TRUNK TRANSFER FACILITIES BETWEEN TAN KWAI TSUEN AND TUEN MUN 工務計劃項目第 34WF 號 — 丹桂村至屯門的增設幹管轉運設施	WATER SUPPLIES DEPT. HONG KONG SKETCH NO. 03798 / 100A
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- LEGEND 圖例：**
- PROPOSED FRESH WATER MAIN UNDER PROJECT 34WF TO BE UPGRADED TO CATEGORY 'A'  
在 34WF 項目下擬提升為甲級工程的淡水管道
  - FRESH WATER MAIN BEING CONSTRUCTED UNDER PROJECT 229WF (FROM PART UPGRADING OF 34WF)<sup>1</sup>  
在 229WF 項目下正在敷設的淡水管道 (屬 34WF 提升的部份工程)
  - FRESH WATER MAIN BEING CONSTRUCTED UNDER PROJECT 234WF (FROM PART UPGRADING OF 34WF)  
在 234WF 項目下正在敷設的淡水管道 (屬 34WF 提升的部份工程)
  - EXISTING FRESH WATER MAIN COMPLETED UNDER BLOCK ALLOCATION SUBHEAD 9100WX  
在整體撥款分目 9100WX 項下已敷設的淡水管道
  - FRESH WATER MAINS TO BE CONSTRUCTED UNDER PROJECT 242WF (FROM PART UPGRADING OF 227WF)  
在 242WF 項目下擬敷設的淡水管道 (屬 227WF 提升的部份工程)
  - FRESH WATER MAINS BEING CONSTRUCTED UNDER PROJECT 233WF (FROM PART UPGRADING OF 227WF)  
在 233WF 項目下正在敷設的淡水管道 (屬 227WF 提升的部份工程)
  - REMAINING FRESH WATER MAINS UNDER PROJECT 227WF  
在 227WF 項目下餘下的淡水管道
  - - - EXISTING FRESH WATER MAIN  
現有的輸水管道

SCALE 比例尺 1 : 30 000

APPROVED  
  
 CE / Des  
 15 / 2 / 99

ADDITIONAL TRUNK TRANSFER FACILITIES BETWEEN AU TAU TREATMENT WORKS AND TUEN MUN  
 凹頭濾水廠至屯門的增設幹管轉運設施  
 (CAT 'A' SUBMISSION)  
 (甲級工程)

WATER SUPPLIES DEPT.  
 HONG KONG  
 SKETCH NO. 03799 / 008