

**For discussion
on 15 December 1999**

PWSC(1999-2000)80

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 - NEW TOWNS AND URBAN AREA DEVELOPMENT

New Territories East Development

Water Supplies - Combined fresh/salt water supply

37WC - Water supply to Tseung Kwan O

Members are invited to recommend to Finance Committee -

- (a) the upgrading of part of **37WC**, entitled “Water supply to Tseung Kwan O - stage 4 phase 3”, to Category A at an estimated cost of \$58.3 million in money-of-the-day prices; and
- (b) the retention of the remainder of **37WC** in Category B.

PROBLEM

By mid 2002, the existing fresh water supply system serving Tseung Kwan O (TKO) new town will not be able to cope with the anticipated increase in water demand arising from the planned housing and industrial developments¹ in TKO.

/PROPOSAL

¹ The types of planned developments in TKO include public and private housing developments and the industrial developments in TKO Industrial Estate and Area 137.

PROPOSAL

2. The Director of Territory Development (DTD), with the agreement of the Director of Water Supplies (DWS) and the support of the Secretary for Works (S for W), proposes to upgrade part of **37WC** to Category A at an estimated cost of \$58.3 million in money-of-the-day (MOD) prices for the construction of the Tiu Keng Leng fresh water service reservoir to supply water to new developments in TKO.

PROJECT SCOPE AND NATURE

3. The scope of **37WC** covers the provision of a water supply system in stages to serve the TKO new town. Finance Committee (FC) has previously approved upgrading parts of **37WC** to Category A to expand the water supply system in pace with the development of the town (see paragraph 19 below). Remaining works under the project comprise -

- (a) construction of the Tiu Keng Leng fresh water service reservoir with a capacity of 37 000 cubic metres; and
- (b) laying of about 5.6 kilometres fresh and salt water distribution mains of diameter ranging from 200 to 1 200 millimetres in TKO town centre and Tiu Keng Leng.

4. As **37WC** proceeds, plans for the TKO new town have changed. Subsequent to upgrading the first phase of stage 4 of **37WC** to Category A as **83WC** in March 1996, there have been some changes to the planning of the TKO new town² which would affect the layout and land use of the town including the Tiu Keng Leng area. With these changes, we estimate the fresh water demand of the town in 2008 will increase from the original estimate of 152 000 cubic metres per day to 161 200 cubic metres per day, but the salt water demand will not change significantly.

/5.

² The changes include the revision of the land use for more residential development and the road layout in Areas 47, 50, 51, 52, 57, 65, 72, 73 and 74, the increase in commercial development in Areas 56 and 66, the planned cargo working area in Area 131, and comprehensive development area in Area 86.

5. To cope with the increase in fresh water demand, we need to revise the project scope of **37WC** by increasing the capacity of the proposed Tiu Keng Leng fresh water service reservoir from the original design of 37 000 cubic metres to 40 000 cubic metres and increasing the length of the proposed water mains from 5.6 kilometres to 9.8 kilometres to serve the development areas and to suit the revised road layout.

6. The part of **37WC** which we now propose to upgrade to Category A comprises the construction of the Tiu Keng Leng fresh water service reservoir to a capacity of 40 000 cubic metres as described in paragraph 5 above together with the associated inlet and outlet water mains between the service reservoir and new Road L732 in Tiu Keng Leng.

JUSTIFICATION

7. In pace with the development of the new town, DWS is expanding in stages the fresh and salt water supply system to serve TKO. The current fresh and salt water demands are 61 500 and 19 700 cubic metres per day, respectively. After completion of works of the third stage of expansion under **68WC**³ “Water supply to Tseung Kwan O - stage 3”, the water supply systems in TKO can cope with a fresh and salt water demands of 96 800 and 45 000 cubic metres per day respectively.

8. In view of the latest planned housing developments in TKO, we anticipate that the estimated population will increase progressively from the present 225 000 to 323 000 in 2002, to 355 000 in 2003 and to 473 000 in 2008. Together with other planned industrial and commercial developments, we expect the respective projected fresh and salt water demands to be as follows -

Year	Fresh water demand (cubic metres per day)	Salt water demand (cubic metres per day)
2002	91 000	26 800
2003	108 400	36 400
2008	161 200	44 700

/We

³ FC approved the upgrading of **68WC** to Category A in January 1994 at an estimated cost of \$180 million.

We need to implement works under **37WC** to cater for the projected growth in water demand of the new town up to 2008.

9. The Director of Housing is at present carrying out site formation work for the Tiu Keng Leng fresh water service reservoir under **83WC** "Water Supply to Tseung Kwan O - stage 4 phase 1" as part of the site formation of Tiu Keng Leng housing development. He will hand over the formed site to DWS for the construction of the service reservoir and laying of associated inlet and outlet water mains in May 2000. To meet the additional daily fresh water demand after mid 2002, we propose to upgrade this part of **37WC** to Category A now so that upon completion of the site formation in May 2000, the construction of the service reservoir can proceed for completion in January 2002.

FINANCIAL IMPLICATIONS

10. We estimate the capital cost of the proposed works to be \$87.4 million in MOD prices. According to an agreement between the Housing Authority (HA) and the Government, HA will bear a share of the capital cost of the works in proportion to the water demand arising from its housing developments in the TKO new town. On such basis, HA will bear \$29.1 million of the cost leaving the remainder of \$58.3 million to be borne by the Government under **37WC**, made up as follows -

		\$ million			
		Total Capital Cost	Share to be borne by HA	Share to be borne by the Government under 37WC	
(a)	Construction of Tiu Keng Leng fresh water service reservoir	62.7	20.9	41.8	
(b)	Laying of watermains	9.4	3.1	6.3	
(c)	Contingencies	7.2	2.4	4.8	
	Sub-total	79.3	26.4	52.9	(at December 1998 prices)
					/(d)

(d) Provision for price adjustment	8.1	2.7	5.4	
	<u>87.4</u>	<u>29.1</u>	<u>58.3</u>	(in MOD prices)
Total				

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

Year	\$ million (Dec 1998)	Price adjustment factor	\$ million (MOD)
2000 - 2001	15.5	1.05814	16.4
2001 - 2002	32.7	1.11104	36.3
2002 - 2003	3.0	1.16660	3.5
2003 - 2004	1.7	1.22493	2.1
	<u>52.9</u>		<u>58.3</u>

12. We have derived the MOD estimate on the basis of the Government's latest forecast of trend labour and construction prices for the period from 2000 to 2004. We will tender the proposed works under a lump-sum contract because we can clearly define the scope of the majority of the works in advance. The contract will not provide for price adjustments because the contract period will not exceed 21 months.

13. We estimate the annually recurrent expenditure arising from the project to be \$420,000.

14. This project by itself would lead to an increase in water charges by a maximum of 0.03%⁴ in real terms by 2004.

/PUBLIC

⁴ The increase in water charges is calculated on the assumption that the water demand remains static during the period from 2000 to 2004 and the amount of Government subsidy in the waterworks operations is to be contained at the present level.

PUBLIC CONSULTATION

15. We consulted the Sai Kung Provisional District Board on the proposed works in July 1998. Members had no objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

16. The Director of Environmental Protection completed an Environmental Review in August 1993 and concluded that the project would not have any long term environmental impact and no environmental impact assessment would be necessary. We will control noise, dust and site run-off during construction to within established standards and guidelines by incorporating standard environmental pollution control clauses in the works contract.

17. In the planning and design stages of this project, we have given due consideration to designing the level, orientation, and dimension of the proposed service reservoir to minimize the quantity of the construction and demolition material (C&DM) to be generated. To further minimize the generation of C&DM, we will encourage the contractor to use steel instead of timber in formwork and temporary works. Most of the C&DM generated in the construction stage will be excavated material which can be reused on-site as reclamation fill. We will deliver the surplus public fill (about 6 000 cubic metres) to the public filling area at Tseung Kwan O Area 137 for reclamation purpose. The remaining C&D waste (about 400 cubic metres) will need to be disposed of at landfill. We shall require the contractor under the contract to submit a waste management plan (WMP) to the Engineer for approval, with appropriate mitigation measures including the allocation of an area for waste segregation on-site to facilitate reuse/recycling of C&DM. The Engineer shall ensure that the day-to-day operations on site comply with the WMP. We shall implement a trip-ticket system to control the proper disposal of C&DM and shall record the reuse, recycling and disposal of C&DM for monitoring purpose.

LAND ACQUISITION

18. The proposed works do not require any land acquisition.

/BACKGROUND

BACKGROUND INFORMATION

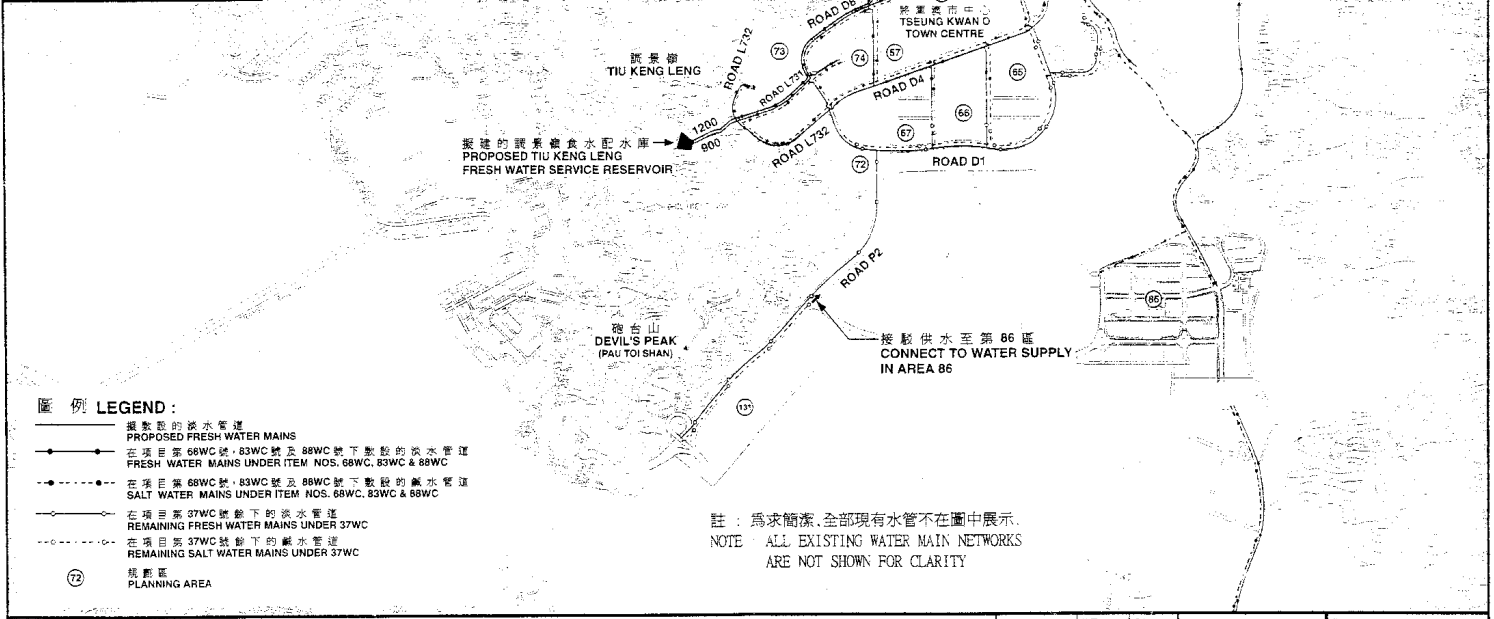
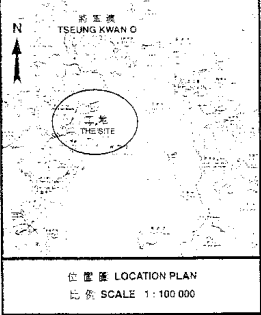
19. In 1978, we upgraded **37WC** to Category B for the provision of a water supply system in stages for a designed population of 445 000 and industrial land of 230 hectares in TKO new town. Since then, FC has approved the upgrading of various parts of **37WC** to Category A for implementing the first three stages of the water supply system. In March 1996, FC approved the upgrading of the first phase of stage 4 works of **37WC** to Category A as **83WC** "Water supply to Tseung Kwan O - stage 4 phase 1" for site formation work for the Tiu Keng Leng fresh water service reservoir and laying of watermains in Tiu Keng Leng and Tai Chik Sha. We commenced the works in March 1997 for completion in August 2000 .

20. In December 1997, FC approved the upgrading of another part of **37WC** to Category A as **88WC** "Water supply to Tseung Kwan O - stage 4 phase 2" for the laying of watermains in TKO town centre central. We commenced the works in December 1998 for completion in September 2000.

21. As regards the proposed works, DWS has substantially completed the detailed design for the service reservoir and mainlaying works using in-house staff resources. We plan to start the proposed works in May 2000 for completion in January 2002.

22. We plan to implement the remaining mainlaying under **37WC** in stages in pace with further development in the new town.

Works Bureau
December 1999



圖例 LEGEND:

- 擬建的淡水管道
PROPOSED FRESH WATER MAINS
- 在項目第 68WC 號、83WC 號及 88WC 號下敷設的淡水管道
FRESH WATER MAINS UNDER ITEM NOS. 68WC, 83WC & 88WC
- 在項目第 68WC 號、83WC 號及 88WC 號下敷設的鹹水管道
SALT WATER MAINS UNDER ITEM NOS. 68WC, 83WC & 88WC
- 在項目第 37WC 號餘下的淡水管道
REMAINING FRESH WATER MAINS UNDER 37WC
- 在項目第 37WC 號餘下的鹹水管道
REMAINING SALT WATER MAINS UNDER 37WC
- 規劃區
PLANNING AREA

註：為求簡潔，全部現有水管不在圖中展示。
NOTE ALL EXISTING WATER MAIN NETWORKS
ARE NOT SHOWN FOR CLARITY

一九九九 - 二〇〇〇 年度工務小組委員會文件 PWSC SUBMISSION 1999-2000

圖則名稱 drawing title
將軍澳供水系統
WATER SUPPLY TO TSEUNG KWAN O

繪圖 drawn S. K. WONG	簽署 initial <i>[Signature]</i>	日期 date 1/9/99	項目編號 item no. 037WC	辦事處 office 新界東拓展處 NEW TERRITORIES EAST DEVELOPMENT OFFICE
核對 checked C. N. KWOK	簽署 initial <i>[Signature]</i>	日期 date 1/9/99	比例 scale 1:20 000	拓展署 TERRITORY DEVELOPMENT DEPARTMENT
核准 approved K. C. NG	簽署 initial <i>[Signature]</i>	日期 date 2/5/99	圖則編號 drawing no. TK2264	