

## **ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE**

### **HEAD 707 - NEW TOWNS AND URBAN AREA DEVELOPMENT**

#### **New Territories North Development**

#### **Civil Engineering - Drainage and erosion protection**

#### **22CD - North West New Territories development - main drainage channels for Yuen Long and Kam Tin – remainder, phase 4**

Members are invited to recommend to Finance  
Committee –

- (a) the upgrading of part of **22CD**, entitled “Main drainage channels for Yuen Long and Kam Tin – Sham Chung Channel”, to Category A at an estimated cost of \$93.7 million in money-of-the-day prices; and
- (b) the retention of the remainder of **22CD**, re-titled “Main drainage channels for Yuen Long and Kam Tin – Tin Tsuen Channel”, in Category B.

### **PROBLEM**

We need to construct a main drainage channel between Tai Tong Tsuen and Fraser Village at the south of Yuen Long Town to alleviate the flooding hazard to these low-lying areas.

**/PROPOSAL .....**

## PROPOSAL

2. The Director of Territory Development (DTD), with the support of the Secretary for Works, proposes to upgrade part of **22CD** to Category A at an estimated cost of \$93.7 million in money-of-the-day (MOD) prices for the construction of a main drainage channel to replace a section of the existing streamcourse from Tai Tong Tsuen to Fraser Village.

## PROJECT SCOPE AND NATURE

3. The scope of **22CD** comprises the construction of main drainage channels and associated works to improve the following sections of streamcourses at the south of Yuen Long Town –

- (a) from Tai Tong Tsuen to Fraser Village; and
- (b) from the south of Shan Ha Tsuen to Lam Hau Tsuen.

4. The part of **22CD** we now propose to upgrade to Category A comprises the works described in paragraph 3(a) above, which include –

- (a) the construction of a rectangular drainage channel about 2.35 kilometres long from Tai Tong Tsuen to Fraser Village;
- (b) the provision of three vehicular bridges and 11 footbridges;
- (c) the provision of roads and ramps with associated drainage and water works;
- (d) the implementation of environmental mitigation measures including landscaping works; and
- (e) the implementation of an environmental monitoring and audit (EM&A) programme for works mentioned in items (a) to (d) above.

/Details .....

Details of the proposed works are shown at Enclosure 1. We plan to commence construction in March 2001 for completion in March 2003. We will implement the remaining works under **22CD** (see paragraph 3(b) above) in late 2002 for completion in early 2005.

## **JUSTIFICATIONS**

5. For many years, the south of Yuen Long Town has been susceptible to flooding due to its low-lying topography. The “North West New Territories Base Strategy Studies” (the Initial Study), completed in 1983, recommended a series of river training works to alleviate the flooding hazard in the North West New Territories, including the south of Yuen Long Town. The “Territorial Land Drainage and Flood Control Strategy Study - Phase II”, completed in 1993, also confirmed the recommendations of the Initial Study. The extensive changes in land use and rapid developments in recent years have aggravated the flooding problem in this area. The need to tackle the flooding problem has therefore become more pressing.

6. The existing section of streamcourse between Tai Tong Tsuen and Fraser Village is narrow and meandering, and can only accommodate moderate rainstorms. The proposed works will turn this section into a wider and deeper drainage channel and will substantially increase the hydraulic capacity of the streamcourse. With a design capacity of accommodating a 50-year return period rainstorm, the drainage channel will relieve the area from flood risk.

7. To facilitate access around and across the embankments of the proposed drainage channel, we will construct three vehicular bridges and 11 footbridges. These will benefit the 6,100 or so villagers living around the works area.

8. In addition, we will construct roads and ramps along the proposed drainage channel to facilitate future maintenance.

## **FINANCIAL IMPLICATIONS**

9. We estimate the capital cost of the project to be \$93.7 million in MOD prices (see paragraph 10 below), made up as follows –

/(a) .....

	\$ million	
(a) Main drainage channel	50.0	
(b) Three vehicular bridges and 11 footbridges	4.2	
(c) Roads and ramps with associated drainage and water works	10.1	
(d) Environmental mitigation measures (including landscaping works)	5.9	
(e) EM&A programme	2.0	
(f) Consultants' fees for –	8.6	
(i) construction stage	0.7	
(ii) resident site staff costs	7.9	
(g) Contingencies	8.0	
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Sub-total	88.8	(in September 2000 prices)
(h) Provision for price adjustment	4.9	
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Total	93.7	(in MOD prices)
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DTD proposes to employ consultants to carry out the construction supervision. A breakdown of the estimate for consultants' fees by man-months is at Enclosure 2.

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

/2001 - 2002 .....

Year	\$ million (Sept 2000)	Price adjustment factor	\$ million (MOD)
2001 - 2002	26.0	1.02550	26.7
2002 - 2003	47.0	1.05627	49.6
2003 - 2004	10.0	1.08795	10.9
2004 - 2005	5.8	1.12059	6.5
	<hr/> 88.8 <hr/>		<hr/> 93.7 <hr/>

11. 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 2001 to 2005. We will tender the proposed works under a standard remeasurement contract because the works involve extensive earthworks, the quantities of which may vary according to the actual ground conditions. The contract will provide for price adjustments as the construction period will exceed 21 months.

12. We estimate the annually recurrent expenditure arising from this project to be \$1.28 million.

## PUBLIC CONSULTATION

13. We consulted the Shap Pat Heung Rural Committee on **22CD** on 10 July 1998 and 6 August 1998. Members of the Rural Committee supported the proposed works. We also consulted the Environmental Improvement Committee of the Yuen Long Provisional District Board about the proposed works on 24 September 1998 and received support from its members. On 2 February 2000, we presented the Tin Shui Wai/Yuen Long Development Programme, including this project, to Yuen Long District Council. Members did not raise any objection to the proposed works.

14. We presented the findings and environmental mitigation measures recommended in the Environmental Impact Assessment (EIA) report to the Yuen Long District Board on 13 June 1996. Members had no objection to the proposed measures. We consulted the EIA Sub-committee of the Advisory Council on the Environment (ACE) on the report on 1 July 1996. The ACE endorsed the report on the conditions prescribed in paragraph 17 below.

15. We gazetted the proposed road scheme ancillary to the main drainage channel under the Roads (Works, Use and Compensation) Ordinance on 30 April 1999 and did not receive any objections. We then gazetted the authorization of the road scheme on 23 July 1999. To rectify some information about the land under resumption, we gazetted amendments to the authorized road scheme on 3 February 2000, and did not receive any subsequent objections. The authorization of the amendment was subsequently gazetted on 20 April 2000.

16. On 18 May 2000, we briefed and updated the Legislative Council Panel on Planning, Lands and Works on the overall flood control and prevention measures. We are committed to and Members supported expediting all flood control schemes in the North West New Territories, including this project.

## **ENVIRONMENTAL IMPLICATIONS**

17. We completed an EIA report on the main drainage channels for Yuen Long, Kam Tin and Ngau Tam Mei in May 1996. The EIA report concluded that the environmental impact arising from the project could be controlled to within established standards and guidelines through the implementation of the recommended mitigation measures. The ACE endorsed the report in July 1996 on the conditions that -

- (a) the old river channels should be considered for restoration into wildlife habitats;
- (b) the disposal of contaminated mud should be to the satisfaction of the Marine Fill Committee (MFC) (i.e. the then Fill Management Committee) and such disposal should have no adverse effects on the environment; and

/(c) .....

- (c) the proponents should review the conceptual off-site wetland compensation measures in the light of the Government's latest policy on off-site wetland compensation and report back to the EIA Sub-committee their specific proposals for this project.

For (a) and (c), the Agriculture, Fisheries and Conservation Department is carrying out a study and will report to the Sub-committee by end 2000. As regards (b), the MFC approved the arrangements for the disposal of contaminated mud in June 2000.

18. We shall formulate an EM&A programme to ensure timely and effective implementation of the measures. The key measures include re-vegetation of embankment slopes and open space with "species of ecological utility"<sup>1</sup>. For short-term impact during construction, we shall require the contractor to -

- (a) ensure frequent watering of the site and to provide wheel-washing facilities in order to reduce emission of fugitive dust;
- (b) use silenced construction plant to reduce noise generation and to erect temporary noise barriers;
- (c) use closed mechanical grabs when dredging contaminated mud on site so as to avoid spillage; and
- (d) use barges and hoppers with tight-fitting seals in order to avoid leakage of materials.

We have included the cost of implementing the environmental mitigation measures (\$5.9 million) and the EM&A programme (\$2 million) in the overall project estimate.

19. At the planning and design stage, we have purposely located the

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<sup>1</sup> "Species of ecological utility" are plant species which will enhance the biodiversity of the area by providing food, shelter, breeding sites etc. for birds, amphibians, mammals, reptiles and insects.

proposed channel in a way that will allow us to reduce the generation of construction and demolition material (C&DM) and to reuse suitable material excavated on site as far as possible. We estimate that -

/(a) .....

- (a) about 10 000 cubic metres ( $\text{m}^3$ ) of construction and demolition (C&D) waste will be disposed of at landfills;
- (b) about 60 000  $\text{m}^3$  of public fill will be delivered to public filling facilities; and
- (c) about 25 900  $\text{m}^3$  of contaminated mud will be disposed of at East Sha Chau marine dumping site.

20. We shall require the contractor to submit a waste management plan to the Engineer for approval, with appropriate mitigation measures including the allocation of an area for waste segregation. We shall require the Engineer to ensure that the day-to-day operations on site comply with the approved waste management plan. We shall require the contractor to reuse the excavated material on site or on other construction sites as filling materials as far as possible to minimize the disposal of public fill to public filling facilities. To further minimize the generation of C&DM, we shall require the contractor not to use hardwood for site hoarding, falsework or shoring of excavation, but to use metal in all components of site hoardings and signboards. We shall control the disposal of public fill and C&D waste at designated facilities through a trip-ticket system. We shall require the contractor to separate public fill from C&D waste for disposal at public filling and landfills respectively and to sort the C&DM on site by category to facilitate reuse and recycling. The reused and recycled materials shall include paper, cardboard, timber and metal. We shall record the disposal, reuse and recycling of C&DM for monitoring purposes.

## LAND ACQUISITION

21. We will resume about 1.18 hectares of agricultural land for the proposed works. The land acquisition and clearance will affect 16 households involving 55 persons and 115 temporary structures. Under the existing policy, the Director of Housing will offer eligible families accommodation in public housing. We will charge the costs of land acquisition and clearance, estimated at \$28 million, to **Head 701** - Land Acquisition.

/BACKGROUND .....



## BACKGROUND INFORMATION

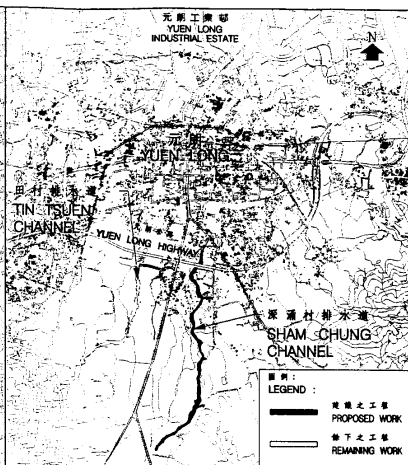
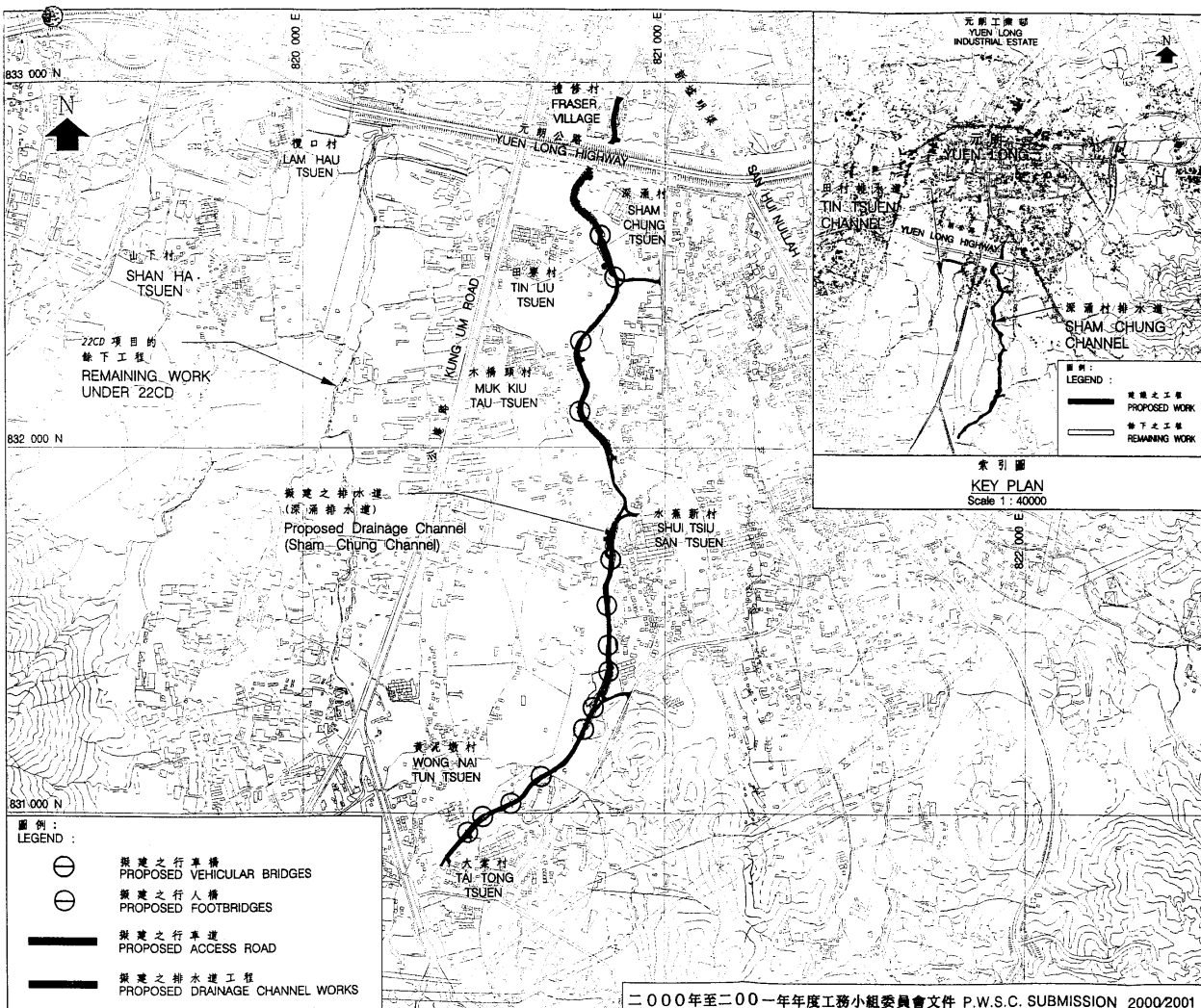
22. We upgraded **22CD** to Category B in May 1995. In February 1997, we engaged consultants to undertake the investigation and detailed design for the proposed works and charged the cost of \$1.4 million to the block allocation **7100CX** “New towns and urban area works, studies, and investigations for items in Category D of the Public Works Programme”. The consultants have completed the detailed design and drawings.

23. We estimate that the project will create some 80 jobs comprising 15 professional/technical staff and 65 labourers, totalling 1 800 man-months.

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Works Bureau  
October 2000

[cd22-05.doc]



索引圖  
KEY PLAN  
Scale 1 : 40000

A	02.10.00	LEGEND REVISED		
繪圖	日期	內容說明	校對	校對
繪圖	日期	內容說明	校對	校對
修訂 REVISION				
姓名 name	簽署 initial	日期 date		
繪圖	C CHUN	09.08.00		
校對	Y P HUNG	09.08.00		
核實 approved				
B S LIU		09.08.00		
總工程師 chief engineer		日期 date		
工程編號 project no. 22CD				
圖紙編號 file no.				
合約編號 contract no.				
合約 contract				
圖紙名稱 drawing title				
新界西北發展計劃 元朗及錦田的主要排水渠 餘下部分第四期 NORTH WEST NEW TERRITORIES DEVELOPMENT MAIN DRAINAGE CHANNELS FOR YUEN LONG AND KAM TIN - REMAINDER PHASE 4				
圖紙編號 drawing no.		比例 scale		
NTN 2069A		1 : 10 000		
辦事處 office				
新界北拓展處 NEW TERRITORIES NORTH DEVELOPMENT OFFICE				
拓展署 TERRITORY DEVELOPMENT DEPARTMENT				

**22CD - North West New Territories development - main drainage channels  
for Yuen Long and Kam Tin - remainder, phase 4**

**Breakdown of the estimate for consultants' fees**

<b>Consultants' staff costs</b>			<b>Estimated man- months</b>	<b>Average MPS* salary point</b>	<b>Multiplier factor</b>	<b>Estimated fees (\$ million)</b>
(a) Consultants' fees for construction stage						
(i) contract administration	Professional		3.5	40	2.4	0.5
	Technical		2.0	16	2.4	0.1
(ii) preparation of as-built drawings	Professional		0.3	40	2.4	0.05
	Technical		1.0	16	2.4	0.05
(b) Resident site staff costs	Professional		32.0	40	1.7	3.4
	Technical		125.0	16	1.7	4.5
Total consultants' staff costs						8.6

\* 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 costs including the consultants' overheads and profits, as the staff will be employed in the consultants' offices. A multiplier factor of 1.7 is applied to the average MPS point in the case of resident site staff supplied by consultants. (At 1.4.2000, MPS pt. 40 = \$62,780 p.m. and MPS pt. 16 = \$21,010 p.m.)
2. The figures given above are based on estimates prepared by the Director of Territory Development. The consultancy works for this project have been included as part of the consultancy agreement for the main drainage channel works for Yuen Long and Kam Tin – remainder, phase 4.