

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

74CD – Village flood protection for Yuen Long, Kam Tin and Ngau Tam Mei, North West New Territories – stage 2

Members are invited to recommend to Finance Committee the upgrading of the remainder of **74CD** to Category A, retitled as “Village flood protection for Tai Kiu and Shui Pin Tsuen, Yuen Long, New Territories”, at an estimated cost of \$62.9 million in money-of-the-day prices.

PROBLEM

The villages in Tai Kiu and Shui Pin Tsuen in Yuen Long are in low-lying areas and are prone to frequent flooding during typhoons or heavy rainstorms.

PROPOSAL

2. The Director of Territory Development, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade the remainder of **74CD** to Category A at an estimated cost of \$62.9 million in money-of-the-day (MOD) prices for village flood protection works at Tai Kiu and Shui Pin Tsuen in Yuen Long.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of **74CD** comprises –
- (a) flood protection works at Tai Kiu, including construction of –
 - (i) a floodwater storage pond;
 - (ii) a floodwater pumping station and associated electrical and mechanical (E&M) works; and
 - (iii) associated internal access and drainage works; and
 - (b) flood protection works at Shui Pin Tsuen, including construction of –
 - (i) an underground floodwater storage tank;
 - (ii) a floodwater pumping station and associated E&M works; and
 - (iii) associated internal access and drainage works.

———— Details of the proposed works at Tai Kiu and Shui Pin Tsuen are shown at Enclosures 1 and 2 respectively. We plan to commence construction in July 2004 for completion in November 2006.

JUSTIFICATION

4. Tai Kiu and Shui Pin Tsuen are situated in the low-lying areas of Yuen Long. Several flooding incidents in the areas have adversely affected the properties of local residents, and have caused economic losses and disruption to transport and social activities in the villages. The proposed flood protection works form part of the Government's overall flood control programme for the North West New Territories.

/5.

5. The proposed works will protect, in the following ways, the villages in Tai Kiu and Shui Pin Tsuen from flooding –

Tai Kiu

- (a) the proposed floodwater storage pond, together with the surface channels, will collect the rainwater within the village boundaries. Before the pond starts to overflow, the proposed pumping system will be activated to pump the water into the existing Yuen Long Nullah; and

Shui Pin Tsuen

- (b) the proposed underground floodwater storage tank will collect the rainwater within the village boundaries via the existing surface channels. Before the tank starts to overflow, the proposed pumping system will be activated to pump the water into the existing drainage system at Town Park Road North.

The proposed flood protection works are capable of withstanding rainstorms with a return period of 50 years¹. The 50-year return period is the desired standard adopted by the Government for new drainage facilities in rural areas. It is derived to achieve cost effectiveness based on land requirement considerations as well as social and economic impacts of flooding.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be \$62.9 million in MOD prices (see paragraph 7 below), made up as follows –

	\$ million
(a) Floodwater storage pond/tank and floodwater pumping stations	56.5

/Tai Kiu

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.

		\$ million
<u>Tai Kiu</u>		
(i)	civil works	26.5
(ii)	E & M works	7.3
<u>Shui Pin Tsuen</u>		
(i)	civil works	17.6
(ii)	E & M works	5.1
(b)	Drainage pipes, channels and internal access	2.0
(c)	Contingencies	<u>5.9</u>
	Sub-total	64.4 (in September 2003 prices)
(d)	Provision for price adjustment	<u>(1.5)</u>
	Total	<u>62.9 (in MOD prices)</u>

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

Year	\$ million (Sept 2003)	Price adjustment factor	\$ million (MOD)
2004 – 2005	17.0	0.98225	16.7
2005 – 2006	29.3	0.97734	28.6
2006 – 2007	11.9	0.97245	11.6
2007 – 2008	3.2	0.96759	3.1

/2008 – 2009

Year	\$ million (Sept 2003)	Price adjustment factor	\$ million (MOD)
2008 – 2009	3.0	0.96638	2.9
	<u>64.4</u>		<u>62.9</u>

8. 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 2004 to 2009. We will tender the proposed civil engineering 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. We will tender the proposed E&M works on fixed-price lump-sum basis because we can clearly define the scope of works in advance.

9. We estimate the annual recurrent expenditure arising from this project to be \$1.43 million.

PUBLIC CONSULTATION

10. On 13 June 2001, we briefed the Legislative Council Panel on Planning, Lands and Works on the flooding that occurred in the New Territories in early June 2001. In August and September 2001, we provided information papers to the Panel and committed to speeding up implementation of the remaining flood protection projects (including **74CD**) in the North West New Territories to bring early relief to the flooding problem. We informed the Legislative Council Panel on Planning, Lands and Works of the proposed upgrading of **74CD** by circulation on 31 March 2003. Members had no objection to the proposal. We presented the Tin Shui Wai/Yuen Long Development Programme (2002/2003 Edition), including this project, to the Yuen Long District Council on 17 April 2003. Members did not raise any objection to the proposed works.

/Tai Kiu

Tai Kiu

11. For the Tai Kiu flood protection scheme, we consulted the Shap Pat Heung Rural Committee and the Environmental Improvement Committee of Yuen Long District Council on 10 May 2002 and 25 July 2002 respectively. Members of both committees supported the project. At the meeting of Environmental Improvement Committee of Yuen Long District Council held on 25 September 2003, members of the committee urged the Government to commence the works as soon as possible for early relief of the flooding problem.

Shui Pin Tsuen

12. For the Shui Pin Tsuen flood protection scheme, we consulted the Ping Shan Rural Committee and the Environmental Improvement Committee of Yuen Long District Council on 18 October 2002 and 14 November 2002 respectively. Members of both committees supported the project.

ENVIRONMENTAL IMPLICATIONS

13. For the flood protection works in the North West New Territories, including this project, we completed an Environmental Study (the Study) in November 1999. We consulted the Advisory Council on the Environment which endorsed the conclusion of the Study in January 2000. The Study concluded that the environmental impact of the proposed works at Tai Kiu and Shui Pin Tsuen was low and could be controlled to within established standards and guidelines through the implementation of the mitigation measures as recommended in the Study. We will implement the recommended mitigation measures by incorporating them into the works contract.

14. We will incorporate into the works contract the recommended measures to control pollution arising during construction and operation. These measures include frequent watering of the site and provision of wheel-washing facilities to reduce emission of fugitive dust, the use of silenced construction plant to reduce noise generation and other procedures as recommended in Environmental Protection Department's Recommended Pollution Control Clauses.

15. We have considered in the planning and design stages ways of minimising the generation of construction and demolition (C&D) materials by giving due consideration to designing the level and layout of the proposed works. We estimate that the proposed works will generate about 7 200 cubic metres (m³) of C&D materials. Of these, we will reuse about 3 000 m³ (42%) on site, 3 600 m³ (50%) as fill in public filling areas² and dispose of 600 m³ (8%) at landfills. The notional cost of accommodating C&D waste at landfill site is estimated to be \$75,000 for this project (based on a notional unit cost³ of \$125/m³).

16. We will require the contractor under the contract to submit a waste management plan (WMP) for approval with appropriate mitigation measures, including the allocation of an area for waste segregation. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will ensure that day-to-day operations on site comply with the approved WMP. We will require the contractor to reuse the excavated materials on site or on other construction sites as filling materials as far as possible to minimise the disposal of public fill. To further minimise the generation of C&D materials, we will encourage the contractor to use non-timber materials for hoarding, formwork and other temporary works. We will control the disposal of public fill and C&D waste to designated public filling 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.

LAND ACQUISITION

17. We will resume about 0.06 hectare of agricultural land for the proposed works at Tai Kiu. The land acquisition and clearance will affect one domestic structure and 18 other temporary non-domestic structures. Under the existing policy, the Director of Housing will offer eligible families

/accommodation

² A public filling area is a designated part of a development project that accepts public fill for reclamation purpose. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

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 are likely to be more expensive) when the existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

accommodation in public housing. We will charge the land acquisition and clearance costs estimated at \$2.20 million, comprising \$1.94 million for land resumption and \$0.26 million for clearance, to **Head 701 - Land Acquisition**.

18. The proposed works at Shui Pin Tsuen do not require any land acquisition.

BACKGROUND INFORMATION

19. We upgraded **74CD** to Category B in December 1995.

20. In June 2001, the Finance Committee approved the upgrading of part of **74CD** to Category A as **117CD** entitled “Village flood protection for Mai Po Lo Wai, Mai Po San Tsuen, Ma Tin Tsuen and Shui Pin Wai, North West New Territories” at an estimated cost of \$174.8 million in MOD prices. The works commenced in December 2001 for completion in December 2005. The present project covers the remaining part of **74CD**.

21. The Director of Drainage Services has completed the detailed design and drawings for the proposed works of the present project using in-house resources. He will also supervise the construction works by using in-house resources.

22. The proposed works will involve removal of ten trees, which will be transplanted within the project site. All trees to be transplanted are not important trees⁴. We will incorporate planting proposals as part of the project, including estimated quantities of ten trees and 200 m² of grassed area.

/23.

⁴ Important trees include trees on the Register of Old and Valuable Trees, and any other trees which meet one or more of the following criteria -

- (a) trees over 100 years old;
- (b) trees of cultural, historical or memorable significance;
- (c) trees of precious or rare species;
- (d) trees of outstanding form; or
- (e) trees with trunk diameter exceeding one metre (measured at one metre above ground level).

23. We estimate that the project will create some 50 jobs, comprising 12 professional/technical staff and 38 labourers, totalling 1 060 man-months.

Environment, Transport and Works Bureau
December 2003