

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE

Civil Engineering – Drainage and erosion protection

108CD – West Kowloon drainage improvement – Lai Chi Kok Transfer Scheme

Members are invited to recommend to Finance
Committee –

- (a) the upgrading of part of **108CD**, entitled
“Inter-Reservoirs Transfer Scheme - environmental
impact assessment, investigation and design” to
Category A at an estimated cost of \$26.0 million in
money-of-the-day prices; and
- (b) the retention of the remainder of **108CD** in
Category B.

PROBLEM

During heavy rainstorm, surface run-off from the West Kowloon hinterland and probable overflow from the Kowloon group of reservoirs¹ may overload the existing drainage system in Sham Shui Po, Cheung Sha Wan and Lai Chi Kok, and cause flooding to the areas.

/PROPOSAL

¹ The Kowloon group of reservoirs comprises Kowloon Reservoir, Shek Lei Pui Reservoir, Kowloon Reception Reservoir and Kowloon Byewash Reservoir.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade part of **108CD** to Category A at an estimated cost of \$26.0 million in money-of-the-day (MOD) prices for engaging consultants to carry out environmental impact assessment (EIA), investigation and detailed design for the proposed Inter-Reservoirs Transfer Scheme (IRTS).

PROJECT SCOPE AND NATURE

3. The scope of IRTS comprises the construction of a water tunnel of about 2.8 kilometres (km) in length and 3 metres (m) in diameter from Kowloon Byewash Reservoir to Lower Shing Mun Reservoir, and the associated intake and outfall structures at both ends of the tunnel.

4. The part of **108CD** which we now propose to upgrade to Category A for the implementation of IRTS comprises -

- (a) consultancy services for the EIA study;
- (b) consultancy services for investigation and detailed design; and
- (c) site investigation.

—— The site plan showing the location of IRTS is at Enclosure 1.

5. We plan to start the proposed consultancies and site investigation in June 2007 for completion by December 2009.

JUSTIFICATION

6. Most of the existing drainage systems in the developed districts of Sham Shui Po, Cheung Sha Wan and Lai Chi Kok were built more than 40 years ago. Owing to rapid developments and changes in land use over the years, some natural ground and slopes have been paved over and become impermeable. The existing drainage systems are unable to cope with the increased surface run-off. Flooding occurs during heavy rainstorms resulting in traffic disruption, properties damage and safety risk to the public.

7. To alleviate the problem, we commissioned an investigation study in October 2002 under **123CD** “Lai Chi Kok Transfer Scheme – preliminary design and investigations” to explore the technical feasibility of the proposed Lai Chi Kok Transfer Scheme (LCKTS). The proposed LCKTS is an integral part of the overall flood control strategy for West Kowloon and comprises the construction of a drainage tunnel to intercept the surface run-off from the West Kowloon hinterland at the upstream and the overflow from the Kowloon group of reservoirs for discharge directly to Victoria Harbour. In the course of the investigation study, we also explored the idea of optimising water conservation by developing the proposed IRTS to transfer the overflow from the Kowloon group of reservoirs via a new water tunnel to Lower Shing Mun Reservoir and then through an existing transfer system to the Sha Tin Water Treatment Works for treatment.

8. In July 2004, we commissioned an additional study under **123CD** to explore the feasibility of the proposed IRTS with a view to achieving both flood protection and water conservation. The study concluded that the proposed IRTS would serve dual objectives of substantially reducing the discharge into the drainage system in the Lai Chi Kok area and at the same time transforming the overflow into potable water resources. The study also suggested that with the implementation of the proposed IRTS, the size of the main tunnel of the proposed LCKTS could be reduced from 6.4 m to 4.9 m, while achieving the same general flood protection level of design return period² of one in 50 years. The reduced LCKTS together with IRTS would achieve an overall cost saving of \$60 million or 5.3% in capital cost as compared to the original LCKTS. Moreover, the proposed IRTS would generate an average annual additional raw water yield of about 2.5 million cubic metres for public consumption.

9. We are now ready to commence the EIA, investigation and detailed design for the proposed IRTS. Due to inadequate in-house resources and expertise, we propose to engage consultants to undertake the proposed tasks.

FINANCIAL IMPLICATIONS

10. We estimate the cost of the proposed project to be \$26.0 million in MOD prices (see paragraph 11 below), made up as follows –

/(a)

² “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	
(a) Consultants' fees for	12.0	
(i) investigation, detailed design, tender document preparation and tender assessment	9.0	
(ii) environmental impact assessment	1.5	
(iii) supervision of site investigation	1.5	
(b) Site investigation	11.1	
(c) Contingencies	2.3	
Sub-total	25.4	(in September 2006 prices)
(d) Provision for price adjustment	0.6	
Total	26.0	(in MOD prices)

_____ A breakdown of the estimates for the consultants' fees by man-months is at Enclosure 2.

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

Year	\$ million (Sept 2006)	Price adjustment factor	\$ million (MOD)
2007 – 2008	7.4	1.01250	7.5
2008 – 2009	12.4	1.02769	12.7
2009 – 2010	5.0	1.04310	5.2
2010 – 2011	0.6	1.05875	0.6
	25.4		26.0

/12.

12. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period from 2007 to 2011. We will separately tender the proposed consultancies for the EIA study and for the investigation and detailed design on a lump sum basis. The consultancy agreements will provide for price adjustment as the consultancy period of each agreement exceeds 12 months.

13. The proposed consultancy and site investigation will not give rise to any recurrent expenditure.

PUBLIC CONSULTATION

14. We consulted the Development and Housing Committee of the Sha Tin District Council in October 2005 and August 2006. Members of the Committee supported the proposed project.

15. On 6 July 2005, we submitted an information paper **CB(1)2006/04-05(01)** on the reduced LCKTS together with IRTS and two other drainage tunnels to the Legislative Council Panel on Planning, Lands and Works to summarise the initial findings and conclusions of the investigation studies and brief Members on the way forward. Members did not raise any objection to the implementation of the reduced LCKTS and IRTS. We circulated to the Panel an information paper on the proposed works in paragraph 4 above on 16 January 2007. Members had no objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

16. The proposed IRTS is a designated project under Schedule 2 of the EIA Ordinance requiring an environmental permit. We have completed an environmental review which indicated that no insurmountable environmental impacts would arise from the proposed works. We will prepare an EIA Report and apply for all necessary environmental permits to meet the requirements under the EIA Ordinance. We will incorporate all the measures recommended in the EIA study into the detailed design and relevant works contracts. We will also apply for an environmental permit before any relevant works commence.

17. The proposed consultancies will not generate any construction and demolition (C&D) materials. We will require the consultant to fully consider measures to minimise the generation of C&D materials and to reuse/recycle C&D materials as much as possible in the future implementation of the construction works.

LAND ACQUISITION

18. The proposed project does not require any land acquisition.

BACKGROUND INFORMATION

19. We included **108CD** “West Kowloon drainage improvement – Lai Chi Kok Transfer Scheme” in Category B in September 2000.

20. In March 2002, we upgraded part of **108CD** to Category A as **123CD** “Lai Chi Kok Transfer Scheme – preliminary design and investigations” at an estimated cost of \$33.3 million in MOD prices for carrying out the site investigation and preliminary design for the proposed LCKTS.

21. In December 2005, we engaged consultants to undertake reference design, contract documentation and tender under the Design and Build procurement approach for the reduced LCKTS under **108CD** at an estimated cost of \$12.4 million in MOD prices. We have charged this amount to the block allocation **Subhead 4100DX** “Drainage works, studies and investigations for items in Category D of the Public Works Programme”. The consultancy commenced in March 2006 for completion in March 2008. We plan to commence construction of the reduced LCKTS in March 2008 for completion in December 2011.

22. We estimate that the proposed consultancy and site investigation will create about 20 jobs (eight for labourers and 12 for professional/technical staff) providing a total employment of 360 man-months.

Environment, Transport and Works Bureau
January 2007

**108CD - West Kowloon Drainage Improvement –
Lai Chi Kok Transfer Scheme**

Breakdown of estimates for consultants' fees

Consultants' staff costs		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$million)
(a) Investigation, detailed design, tender document preparation and tender assessment	Professional	65	38	2.0	7.0
	Technical	55	14	2.0	2.0
(b) Environmental impact assessment	Professional	8	38	2.0	0.9
	Technical	18	14	2.0	0.6
(c) Supervision of site investigation	Professional	6	38	2.0	0.7
	Technical	23	14	2.0	0.8
Total consultants' staff cost					12.0

*MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS point to estimate the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultant's office. (As at 1 January 2006, MPS point 38 = \$54,255 per month and MPS point 14 = \$18,010 per month).
2. We will only know the actual man-months and actual fees when we have selected the consultants through the usual competitive fee bid system.