

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 - DRAINAGE

Civil Engineering – Drainage and erosion protection

109CD - Drainage improvement in Sha Tin and Tai Po

Members are invited to recommend to Finance Committee -

- (a) the upgrading of part of **109CD**, entitled “Drainage improvement in Sha Tin and Tai Po – consultants’ fees and investigations”, to Category A at an estimated cost of \$24.0 million in money-of-the-day prices; and
- (b) the retention of the remainder of **109CD** in Category B.

PROBLEM

Many local areas in Sha Tin and Tai Po are susceptible to frequent flooding during heavy rainstorms due to the inadequate capacity of the existing drainage systems and natural streamcourses in the areas.

/PROPOSAL

PROPOSAL

2. The Director of Drainage Services (D of DS), with the support of the Secretary for Works, proposes to upgrade part of **109CD** to Category A at an estimated cost of \$24.0 million in money-of-the-day (MOD) prices for engaging consultants to undertake site investigations, impact assessments and design for the drainage improvement works in Sha Tin and Tai Po.

PROJECT SCOPE AND NATURE

3. The scope of works of **109CD** includes -
- (a) construction of about 5 kilometres of drainage channels for Lam Tsuen River, She Shan River, Tai Po River and Kwun Hang River;
 - (b) upgrading of about 8 kilometres of stormwater drains in town areas of Sha Tin and Tai Po; and
 - (c) construction of two floodwater pumping stations and other minor drainage facilities.

Site plans showing the locations of the proposed drainage works are at Enclosure 1.

4. We propose to upgrade part of **109CD** to Category A for investigations and a consultancy on the following -
- (a) site investigations and surveys;
 - (b) environmental impact assessment;
 - (c) traffic impact assessment;
 - (d) water gathering ground impact assessment;
 - (e) preliminary design; and
 - (f) detailed design, including preparation of tender documents and assessment of tenders.

5. We plan to start the proposed investigations and detailed design in November 2001 for completion by May 2005.

/JUSTIFICATIONS

JUSTIFICATIONS

6. Owing to rapid developments and extensive changes in land use in Sha Tin and Tai Po over the years, more and more natural ground has been paved over and become impermeable. Rainwater which would previously dissipate naturally through ground filtration can no longer do so. This has led to significant increase in surface run-off and overloading of the existing drainage system and streamcourses. As such, many areas of Sha Tin and Tai Po are susceptible to flooding during heavy rainstorms.

7. We completed the Stormwater Drainage Master Plan Study in Sha Tin and Tai Po in October 1999. The study reveals that some stormwater drains and natural streamcourses do not have the required hydraulic capacity to meet the flow requirements. To tackle the flooding problems in Sha Tin and Tai Po, the study recommends the construction of river channels, the upgrading of existing stormwater drains and the construction of flood pumping stations in the low-lying areas as detailed in paragraph 3 above.

8. Upon completion of the proposed drainage improvement works, the flood protection level in Sha Tin and Tai Po will generally be brought up to the required standard and the risk of flooding during heavy rainstorms will be substantially reduced.

9. Due to a lack of in-house staff resources, D of DS proposes to employ consultants to carry out site investigations, surveys, impact assessments, preliminary and detailed design to facilitate the implementation of the proposed drainage improvement works under **109CD**.

FINANCIAL IMPLICATIONS

10. We estimate the cost of the proposed investigations and consultancy to be \$24.0 million in MOD prices (see paragraph 11 below), made up as follows –

	\$ million
(a) Site investigations and surveys	7.1
(b) Consultants' fees -	14.9
(i) supervision of site investigations and surveys	0.8

/(ii)

	\$ million	
(ii) environmental impact assessment	1.6	
(iii) traffic impact assessment	1.0	
(iv) water gathering ground impact assessment	0.5	
(v) preliminary design	3.2	
(vi) detailed design including preparation of tender documents and assessment of tenders	7.8	
(c) Contingencies	2.2	
Sub-total	24.2	(in September 2000 prices)
(d) Provision for price adjustment	(0.2)	
Total	24.0	(in MOD prices)

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

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

Year	\$ million (Sept 2000)	Price adjustment factor	\$ million (MOD)
2001 – 2002	1.8	0.98000	1.8
2002 – 2003	7.2	0.97976	7.1
2003 – 2004	8.1	0.98759	8.0
2004 – 2005	3.7	0.99549	3.7

/2005

Year	\$ million (Sept 2000)	Price adjustment factor	\$ million (MOD)
2005 – 2006	2.5	1.00346	2.5
2006 – 2007	0.9	1.01149	0.9
	24.2		24.0

12. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 2001 to 2007. We will tender the proposed consultancy as a lump sum contract with provision for price adjustment because the consultancy agreement will exceed 12 months. The consultants will in turn appoint contractors for the site investigations and survey works on a re-measurement basis by competitive tendering process. The consultants will supervise the site investigations and survey works. There will be no provision for price adjustment as the period of the site investigation and survey works will not exceed 21 months.

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

PUBLIC CONSULTATION

14. We presented the findings and recommendations of the study completed under **79CD** "Stormwater drainage master plan study in Sha Tin and Tai Po" to the Health and Environment Committee of the Sha Tin District Council on 4 January 2001 and the Tai Po District Council on 12 January 2001. Both supported the implementation of the project.

15. We consulted the LegCo Panel on Planning, Lands and Works on 23 April 2001. Members generally supported the proposed investigations and consultancy study. Nevertheless, some Members requested the Administration to provide an overview of the flood control and prevention strategy for tackling the flooding problem in the territory and to provide more details about the project. We have already submitted a supplementary paper to the Panel, as set out in Enclosure 4 of paper PWSC(2001-02)28.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

16. The proposed consultancy for site investigations, impact assessments and design will not have any adverse environmental implications. Part of **109CD**¹ is classified as a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO). We completed a Preliminary Environmental Review (PER) in March 2000 and an environmental permit is required for this part of the project. We will carry out an environmental impact assessment and will incorporate all the measures recommended in the study into the detailed design and relevant works contract.

17. The proposed consultancy will not generate any materials and the proposed site investigations will only generate an insignificant amount of construction and demolition (C&D) materials. For the construction stage of this project, we will require the consultants to fully consider measures in the detailed design for minimizing the generation of materials and for reusing/recycling materials as much as possible.

LAND ACQUISITION

18. The proposed investigations and consultancy do not require land acquisition.

BACKGROUND INFORMATION

19. We commissioned **79CD** "Stormwater drainage master plan study in Sha Tin and Tai Po" in January 1998 and completed the study in October 1999. We included **109CD** "Drainage improvement in Sha Tin and Tai Po" in Category B in September 2000. The project is estimated to cost about \$451 million (in September 2000 prices).

20. We plan to commence the consultancy in November 2001. By December 2003, we aim to complete the site investigations and detailed design for the improvement works which are not classified as designated projects under the EIAO and in those areas which do not require land resumption. We will complete the rest of the site investigations and detailed design by May 2005. We plan to proceed with the construction in phases starting from October 2004 with a view to completing all the improvement works by end 2008.

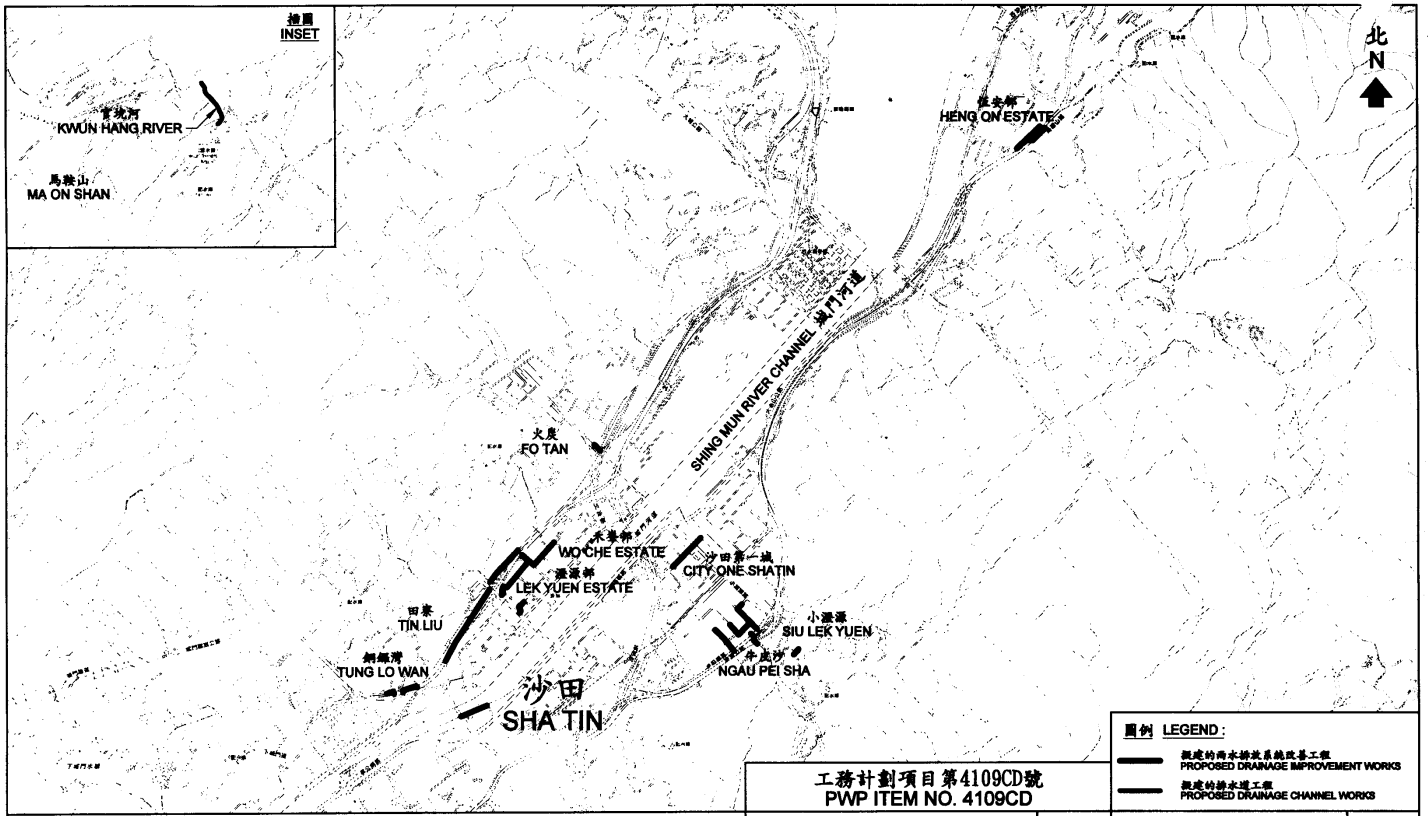
/21.

¹ The part of **109CD** classified as a designated project under EIAO covers the construction of drainage channels for She Shan River, Tai Po River and Kwun Hang River, upgrading of stormwater drains in the town areas of Tai Po and construction of a floodwater pumping station in Tai Po Market.

21. We estimate that the proposed investigations and consultancy will create about 15 new jobs. These will comprise seven professional/technical staff and eight labourers, totalling 600 man-months.

Works Bureau
May 2001

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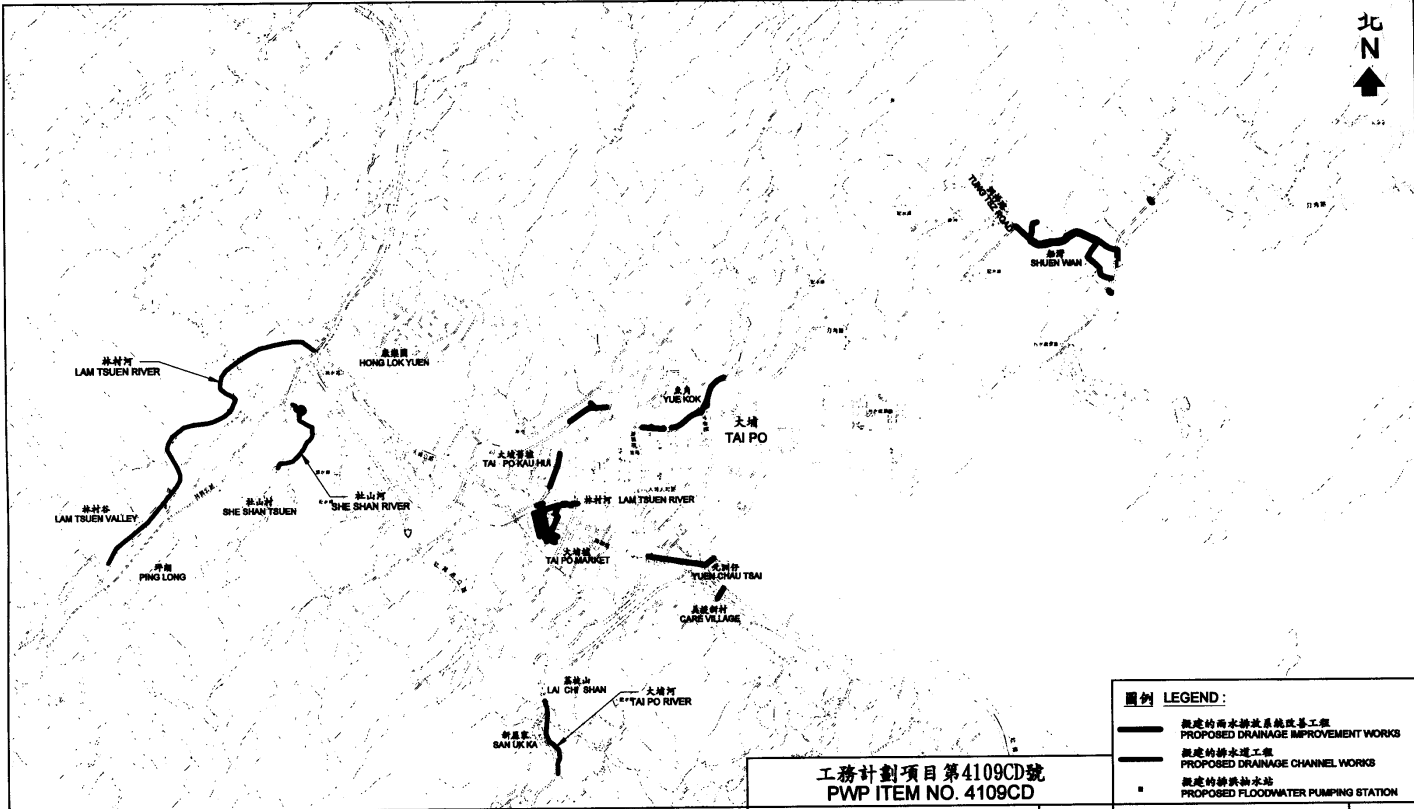
圖例 LEGEND:	
	擬建的雨水排放系統改善工程 PROPOSED DRAINAGE IMPROVEMENT WORKS
	擬建的排水道工程 PROPOSED DRAINAGE CHANNEL WORKS

工務計劃項目第4109CD號 PWP ITEM NO. 4109CD	
繪畫 drawn	SIGNED C.W. CHAN
日期 date	12-04-2001
核對 checked	SIGNED C.H. WONG
日期 date	12-04-2001
批准 approved	SIGNED C.H. WONG
日期 date	12-04-2001
部門 office	顧問工程管理部 CONSULTANTS MANAGEMENT DIVISION

圖則編號 drawing no.	比例 scale
DCM/2001/045	N.T.S.
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圖則名稱 drawing title

沙田及大埔雨水排放系統改善計劃(沙田雨水排放系統改善工程)
DRAINAGE IMPROVEMENT IN SHA TIN AND TAI PO
(SHA TIN DRAINAGE IMPROVEMENT WORKS)



圖例 LEGEND:

- 擬建的雨水排放系統改善工程
PROPOSED DRAINAGE IMPROVEMENT WORKS
- 擬建的排水道工程
PROPOSED DRAINAGE CHANNEL WORKS
- 擬建的排洪抽水站
PROPOSED FLOODWATER PUMPING STATION

圖則編號 drawing no. **DCM/2001/046** 比例 scale **N.T.S.**

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GOVERNMENT OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION

**工務計劃項目第4109CD號
PWP ITEM NO. 4109CD**

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批准 approved	SIGNED	C.H. WONG	日期 date	12-04-2001

部門 office **顧問工程管理部
CONSULTANTS MANAGEMENT DIVISION**

圖則名稱 drawing title

**沙田及大埔雨水排放系統改善計劃(大埔雨水排放系統改善工程)
DRAINAGE IMPROVEMENT IN SHA TIN AND TAI PO
(TAI PO DRAINAGE IMPROVEMENT WORKS)**

109CD – Drainage improvement in Sha Tin and Tai Po

Breakdown of estimate for consultants' fees

			Estimated man- months	Average MPS* salary point	Multiplier Factor	Estimated fee (\$ million)
Consultants' staff costs						
(a)	Supervision of site investigations and surveys	Professional	5	38	1.7	0.5
		Technical	9	14	1.7	0.3
(b)	Impact assessments	Professional	16	38	2.4	2.2
		Technical	20	14	2.4	0.9
(c)	Preliminary design	Professional	14	38	2.4	1.9
		Technical	28	14	2.4	1.3
(d)	Detailed design (including preparation of tender documents and assessment of tenders)	Professional	36	38	2.4	5.0
		Technical	62	14	2.4	2.8
Total consultants' staff costs						14.9
Out-of-pocket expenses						
(a)	Site investigations and surveys					7.1
Total out-of-pocket expenses						7.1

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.4 is applied to the average MPS point to arrive at the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. A multiplier factor of 1.7 is applied in the case of site staff supplied by the consultants. (At 1.4.2000, MPS pt. 38 = \$57,525 per month and MPS pt. 14 = \$19,055 per month).

2. Out-of pocket expenses are the actual cost incurred. The consultants are not entitled to any additional payment for overheads or profit in respect of these items.
3. The figures given above are based on estimates prepared by the Director of Drainage Services. We will only know the actual man-months and actual fees when we have selected the consultants through the usual competitive lump sum fee bid system.