

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

### **HEAD 704 – DRAINAGE**

#### **Environmental Protection – Sewerage and sewage treatment**

#### **326DS – Central and East Kowloon sewerage, sewage treatment and disposal – advance housing-related works**

Members are invited to recommend to Finance Committee the upgrading of **326DS** to Category A at an estimated cost of \$50.8 million in money-of-the-day prices for sewerage improvement works along Cha Kwo Ling Road and Wai Yip Street – advance housing-related works.

### **PROBLEM**

Existing sewers along Cha Kwo Ling Road and Wai Yip Street do not have adequate capacity to serve the planned public housing developments in East Kowloon.

### **PROPOSAL**

2. The Director of Drainage Services, with the support of the Secretary for the Environment and Food, proposes to upgrade **326DS** to Category A at an estimated cost of \$50.8 million in money-of-the-day (MOD) prices for implementing the necessary sewerage improvement works along Cha Kwo Ling Road and Wai Yip Street to serve the planned public housing developments at the Eastern Harbour Crossing (EHC) and Cha Kwo Ling Kaolin Mine (CKL) sites in East Kowloon.

**/PROJECT .....**

## PROJECT SCOPE AND NATURE

3. The scope of **326DS** comprises implementation of the following works –

- (a) construction of about 560 metres (m) of new sewers from 600 millimetres (mm) to 750 mm in diameter along Cha Kwo Ling Road; and
- (b) replacement of about 870 m of sewers from 450 mm to 750 mm in diameter by sewers from 750 mm to 900 mm in diameter along Cha Kwo Ling Road and Wai Yip Street.

We plan to start the proposed works in November 2002 for completion in June 2006. Construction of new sewers will be completed in 2004 and the replacement works in 2006 to tie in with completion of the housing developments at the EHC and CKL sites respectively. A location plan showing the proposed works is at Enclosure 1.

## JUSTIFICATION

4. According to the Public Housing Development Programme, the Hong Kong Housing Authority (HA) plans to provide about 15 000 public housing flats for a projected population of 50 500 in the areas neighbouring EHC and in CKL. Population intake for these two areas is scheduled to start in mid 2004 and early 2010 respectively. We need to provide adequate sewerage facilities to serve these new developments.

5. In February 1999, the Environmental Protection Department commissioned a study entitled “Review of Central and East Kowloon Sewerage Master Plans” (the Study) to assess the adequacy of sewerage facilities for planned future developments in Central and East Kowloon. The Study revealed that, inter alia, existing sewers along Cha Kwo Ling Road do not have adequate capacity to serve the planned public housing developments at the EHC and CKL sites. To cope with the sewage flows from these new developments, the study recommends the construction of new sewers and upgrading of existing ones along Cha Kwo Ling Road and Wai Yip Street. The sewage collected under the project will be conveyed via the Kwun Tong Preliminary Treatment Works to the Stonecutters Island Sewage Treatment Works for chemically-enhanced primary treatment<sup>1</sup>. /6. ....

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<sup>1</sup> Chemically enhanced primary treatment (CEPT)- chemicals are added during the CEPT process to enhance the removal of suspended solids and pollutants with oxygen demand.

6. In addition to the proposed sewerage project, there are a number of infrastructure projects, including “Eastern Harbour Crossing/Lam Tin Tunnels – Site Formation and Associated Works” by the Mass Transit Railway Corporation, “Site Formation for Cha Kwo Ling Kaolin Mine Site” by the Civil Engineering Department and “Tseung Kwan O Western Coast Road” by the Territory Development Department, will be carried out in the vicinity of the housing sites at EHC and CKL. Housing Department (HD) has been closely involved in these projects to minimise and mitigate interfacing problems. To expedite and better co-ordinate the housing developments at the EHC and CKL sites, and to minimise disruption to the public due to repeated road openings, we will entrust the proposed sewerage works along Cha Kwo Ling Road and Wai Yip Street to HA. HA has agreed to undertake implementation of the sewerage project and will inject dedicated resources to ensure its timely completion in mid 2004.

7. Director of Water Supplies will also entrust the salt water mainlaying works along Cha Kwo Ling Road (part of **36WS**)<sup>2</sup> to HA. To avoid interface problems which may arise from two contractors working in the same site almost at the same time, Director of Housing (D of H) will include the mainlaying works under **36WS** and the proposed sewerage works under one contract. This arrangement would shorten the overall construction period and minimise disturbance to the public.

## FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the project to be \$50.8 million in MOD prices (see paragraph 9 below), made up as follows –

	<b>\$ million</b>
(a) Sewers	35.4
(i) construction of about 560 m of new sewers	14.9
(ii) construction of about 870 m of replacement sewers	20.5

/(b) .....

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<sup>2</sup> A related paper, PWSC(2002-03)24, for upgrading part of **36WS** under Head 709 to Category A is also submitted for Members' consideration in this meeting.

(b)	Environmental mitigation measures	0.5	
(c)	Consultants' fees for	10.0	
	(i) contract administration	0.7	
	(ii) site supervision	9.3	
(d)	HA's on-cost <sup>3</sup>	0.9	
(e)	Contingencies	4.7	
	Sub-total	51.5	(in September 2001 prices)
(f)	Provision for price adjustment	(0.7)	
	Total	50.8	(in MOD prices)

Due to insufficient in-house resources, D of H will engage consultants to carry out contract administration and site supervision of the proposed works. A breakdown by man-months of the estimates for consultants' fees is at Enclosure 2.

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

Year	\$ million (Sept 2001)	Price adjustment factor	\$ million (MOD)
2002 – 2003	2.3	0.98625	2.3
2003 – 2004	11.1	0.98378	10.9
2004 – 2005	15.2	0.98378	15.0
			/2005 .....

<sup>3</sup> There is a standard arrangement for the Government to pay HA a 2% on-cost for administrative and supervision works (i.e., on items 7(a) to (c)), which HA undertakes for the Government on an entrustment basis.

Year	\$ million (Sept 2001)	Price adjustment factor	\$ million (MOD)
2005 – 2006	13.1	0.98378	12.9
2006 – 2007	7.1	0.98378	7.0
2007 – 2008	2.7	0.98378	2.7
	51.5		50.8

10. We have derived the MOD estimate on the basis of Government's latest forecast of trend labour and construction prices for the period 2002 to 2008. D of H will tender the proposed works as a standard re-measurement contract because of the uncertainties in the existence and location of underground utilities such as electricity cables, telephone cables and water pipes. The contract will provide for price adjustments because the contract period will exceed 21 months.

11. We estimate that the annual recurrent expenditure for maintenance works will be about \$162,000.

12. Based on the current level of expenditure on operation and maintenance of sewerage facilities, the proposed works by themselves would lead to an increase in the recurrent cost of providing sewage services by about 0.02%. This will need to be taken into account in determining sewage charges.

## **PUBLIC CONSULTATION**

13. We consulted the Traffic and Transport Committee of the Kwun Tong District Council on the proposed sewerage works on 20 September 2001. Members supported implementation of the proposed works.

14. We consulted the Legislative Council Panel on Environmental Affairs on the proposed works on 26 November 2001. Members noted that we would submit the project proposal to the Public Works Subcommittee for discussion.

**/ENVIRONMENTAL ....**

## ENVIRONMENTAL IMPLICATIONS

15. We completed a Preliminary Environmental Review (PER) for the proposed sewerage works in March 2000. The PER concluded that the proposed works would not cause long-term adverse environmental impact. The Director of Environmental Protection vetted the PER and agreed that an Environmental Impact Assessment would not be required. For short-term impacts during construction, D of H will require the contractor to control noise, dust, and site run-off within established standards and guidelines through implementation of mitigation measures, such as the use of temporary noise barriers and silenced construction plant to reduce noise generation, water-spraying to reduce emission of dust, and strict control on diversion of sewage flows in the works contracts. We estimate the cost of implementing the environmental mitigation measures to be \$0.5 million. We have included this in the overall project estimate.

16. At the planning and design stages, D of H has given due consideration to the need to minimise the generation of construction and demolition (C&D) materials when designing the level and layout of the proposed works. We will use suitable excavated materials for filling within the project site to minimise off-site disposal.

17. D of H estimates that the project will generate about 10 250 m<sup>3</sup> of C&D materials. Of these, we will reuse about 5 600 m<sup>3</sup> (55%) on site, about 4 400 m<sup>3</sup> (42%) as fill in public filling areas<sup>4</sup> and dispose of about 250 m<sup>3</sup> (3%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$31,250 for this project (based on a notional unit cost<sup>5</sup> of \$125/m<sup>3</sup>).

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<sup>4</sup> A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

<sup>5</sup> 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 \$125/m<sup>3</sup>), 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.

18. D of H will require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. D of H will ensure that the day-to-day operations on site comply with the approved WMP. The contractor will be required to separate reusable C&D materials from C&D waste for reuse on site. D of H will control the disposal of C&D waste at appropriate locations through a trip-ticket system. To minimise the generation of C&D materials at the construction stage, D of H will encourage the contractor to use non-timber formwork and recyclable materials for temporary works. In addition, the contractor will be required to use metal hoarding and precast units as far as practicable.

## LAND ACQUISITION

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

## BACKGROUND INFORMATION

20. We included **326DS** to Category B in September 2000 for implementation of “Central and East Kowloon sewerage, sewage treatment and disposal – advance housing-related works”. In March 2001, we have included an item under block allocation **Subhead 4100DX** “Drainage works, studies and investigations for items in Category D of the Public Works Programme” at an estimated cost of \$3.41 million in MOD prices for engaging consultants to undertake site investigations, surveys and detailed design for the project. We substantially completed the detailed design in March 2002.

21. D of H will require the contractor to submit a temporary traffic management scheme for approval before commencement of works. During implementation, D of H will require the contractor to carry out the works section by section and will maintain road access as far as possible. The contractor will display notice boards on site to explain to the public the reason for temporary traffic arrangements and the proposed completion date of the concerned section of works. The traffic impact assessment, which was conducted in the detailed design stage, suggested that the above measures would minimize possible impact to the traffic in the areas. In addition, telephone hotlines will be set up for the public to make enquiries or lodge complaints.

22. We estimate that the project will create some 25 jobs comprising five professional/technical and 20 labourers, totalling 930 man-months.

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Environment and Food Bureau  
May 2002

(pwc326dsfin.doc)



**Enclosure 2 to PWSC(2002-03)26**

**326DS – Central and East Kowloon sewerage, sewage treatment  
and disposal – advance housing related works**

**Breakdown of estimates for consultants' fees**

<b>Consultants' staff costs</b>			<b>Estimated man- months</b>	<b>Average MPS* salary point</b>	<b>Multiplier<sup>(Note 1)</sup></b>	<b>Estimated fee (\$million)</b>
(a)	Contract administration <sup>(Note 2)</sup>	Professional	3.0	–	–	0.4
		Technical	6.0	–	–	0.3
(b)	Site supervision by resident site staff of the consultants <sup>(Note 3)</sup>	Professional	42.0	38	1.7	4.3
		Technical	151.0	14	1.7	5.0
<b>Total consultants' staff costs</b>						<b>10.0</b>

\* MPS = Master Pay Scale

**Notes**

1. A multiplier of 1.7 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (As at 1.4.2001, MPS pt. 38 = \$60,395 per month and MPS pt. 14 = \$19,510 per month.)
2. The consultants' staff cost for contract administration is calculated in accordance with the consultancy agreement between the Director of Housing and the consultants for the design and construction of the project **326DS**.
3. The consultants' staff cost for site supervision is based on estimates prepared by the consultants appointed by the Director of Housing. We will know the actual man-months and actual costs only after the completion of the construction works.