

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 704 – DRAINAGE

#### Environmental Protection – Sewerage and Sewage Treatment 171DS – North and South Kowloon sewerage, stage 2

Members are invited to recommend to Finance Committee the upgrading of **171DS** to Category A at an estimated cost of \$54.0 million in money-of-the-day prices for the construction of North and South Kowloon sewerage, stage 2 works.

### PROBLEM

Some existing sewers in the Kowloon City and To Kwa Wan areas do not have adequate capacity to cope with the additional sewage flow from future housing redevelopments there.

### PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade **171DS** to Category A at an estimated cost of \$54.0 million in money-of-the-day (MOD) prices for the construction of North and South Kowloon sewerage, stage 2 works.

### PROJECT SCOPE AND NATURE

3. The scope of the proposed works comprises –

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- (a) replacing about 0.7 kilometres (km) of existing sewers ranging from 150 millimetres (mm) to 375 mm in diameter by new sewers ranging from 525 mm to 600 mm in diameter in Fat Kwong Street, Shun Yung Street, Ko Shan Road and San Lau Street in the To Kwa Wan area; and
- (b) replacing about 1.3 km of existing sewers ranging from 225 mm to 450 mm in diameter by new sewers ranging from 375 mm to 675 mm in diameter in Inverness Road, Junction Road, Dumbarton Road, Grampian Road and Prince Edward Road West in the Kowloon City area.

4. We plan to start construction in December 2005 for completion in March 2008. A site plan showing the indicative locations of the proposed works is at Enclosure 1.

## JUSTIFICATION

5. The North and South Kowloon Sewerage Master Plan (SMP) is one of the 16 SMPs developed by the Administration to identify the sewerage infrastructure necessary for meeting the demands of an increasing population and improving the water quality in Victoria Harbour. The North and South Kowloon SMP study was completed in February 1993 and a package of sewerage improvement works was identified to improve and upgrade the sewerage system in the area in two stages. The stage 1 works started in March 1995 and were completed in April 1999.

6. In 1999, the Environmental Protection Department (EPD) commissioned the Review of Central and East Kowloon Sewerage Master Plans (RCEKSMP) study to review and assess the adequacy of the existing sewerage infrastructure to meet the future flow demand based on the latest development and planning information. The study identified that some existing sewers in To Kwa Wan and Kowloon City would not be able to cope with the additional sewage flows from the planned housing redevelopments at Valley Road Estate, Tung Tau Cottage Area West and Inverness Road sites. We therefore propose to upgrade or replace them by new sewers of larger diameter to provide adequate capacity.

7. The first population intake for the public housing developments in the Tung Tau Cottage Area West and Inverness Road sites is scheduled for August 2009 and April 2011 respectively. If we do not implement the proposed sewerage works, sewage generated from these redevelopments may overflow during peak flow conditions.

## FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the proposed works to be \$54.0 million in MOD prices (see paragraph 9 below), made up as follows –

	<b>\$ million</b>
(a) Construction of about 2.0 km of sewers	41.6
(b) Consultants' fees for	7.6
(i) contract administration	1.0
(ii) site supervision	6.6
(c) Environmental mitigation measures	0.6
(d) Contingency	4.0
Sub-total	53.8 (in September 2004 prices)
(e) Provision for price adjustment	0.2
Total	54.0 (in MOD prices)

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

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

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Year	\$ million (Sept 2004)	Price adjustment factor	\$ million (MOD)
2005 – 2006	5.1	1.00450	5.1
2006 – 2007	20.3	1.00576	20.4
2007 – 2008	20.3	1.00576	20.4
2008 – 2009	6.0	1.00576	6.0
2009 – 2010	2.1	1.00953	2.1
	53.8		54.0

10. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the public sector building and construction output for the period 2005 to 2010. We will tender the works under a standard re-measurement contract because of the uncertainties of the 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. The proposed works will not give rise to any additional recurrent expenditure.

## **PUBLIC CONSULTATION**

12. We consulted the Kowloon City District Council regarding the implementation of the proposed sewerage works on 20 January 2005. Members appreciated that the works were necessary and had no objection, in principle, to their implementation. To minimise the localised traffic and noise impacts, they requested us to (i) provide further information to the District Council on the details of the works arrangement prior to the commencement of works on site; (ii) take necessary measures to mitigate the associated noise and traffic problems; and (iii) maintain close liaison with affected parties during the planning and construction period, accommodate any suggestions arising as far as possible, and ensure that the works would be completed within the shortest possible time.

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13. We consulted the Legislative Council Panel on Environmental Affairs on the proposed works on 24 March 2005. Members supported the implementation of the proposed works and requested us to provide detailed information on the proposed measures for minimising possible disruption to traffic due to road excavation works. The supplementary information is set out in paragraphs 17 to 19.

## **ENVIRONMENTAL IMPLICATIONS**

14. The project is not a designated project under Environmental Impact Assessment Ordinance. We completed the Environmental Review (ER) for the proposed works in June 2002. The project will not give rise to long term environmental impact. We will implement appropriate environmental mitigation measures to minimise nuisances arising from the works. For short term impacts during construction, we will control dust and site run-off within established standards and guidelines through the implementation of mitigation measures, such as water-spraying to reduce emission of fugitive dust and strict control on diversion of sewage flows in the works contract. We will control noise through the use of temporary noise barriers and silenced construction plants to reduce noise generation as predicted and recommended in the ER. We will incorporate relevant clauses into the works contract to require the contractor to carry out the recommended environmental mitigation measures to control pollution in accordance with the relevant regulations during construction. We have included \$0.6 million in September 2004 prices in the overall project estimate for implementation of the environmental mitigation measures.

15. We have given due consideration to the need to minimise construction and demolition (C&D) materials in the planning and design stages of the proposed works. We will require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to reduce, reuse and recycle C&D materials. We will ensure that the day-to-day operations on site comply with the approved WMP. 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. In addition, we will give suitable training and instructions to site staff to increase their awareness of waste management issues and the need to minimise waste generation.

16. We estimate that about 6 280 cubic metres (m<sup>3</sup>) of C&D materials will be generated by the project. Of these, we will reuse about 3 580 m<sup>3</sup> (57%) on site and 1 890 m<sup>3</sup> (30%) as fill in public filling areas<sup>1</sup>, and dispose of 810 m<sup>3</sup> (13%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$101,250 for this project (based on a notional unit cost<sup>2</sup> of \$125/m<sup>3</sup>).

## TRAFFIC IMPLICATIONS

17. We have completed a traffic impact assessment and worked out mitigation measures to minimise possible disruption to traffic during construction of the sewers. To minimise the traffic impacts, works will be divided into a number of sections, each generally not exceeding 40 to 50 metres. Each section will normally require the closure of one traffic lane. We will maintain smooth traffic flow through temporary traffic management measures and display notice boards on site to explain the reason for the temporary traffic arrangements and give the expected completion date of the concerned section. In addition, a telephone hotline will be set up for the public to make enquiries or lodge complaints. Construction works in busy road sections will be carried out in non-peak hours. To expedite works progress without inducing unacceptable nuisance to the public, we will use the trenchless method to construct sewers at critical locations such as junctions of Grampian Road and Nga Tsin Wai Road in Kowloon City; and San Lau Street and Chatham Road North in To Kwa Wan.

18. A Traffic Management Liaison Group (TMLG) will be established to discuss, scrutinise and agree on the proposed temporary traffic arrangements. The Kowloon City District Council members, and representatives from Transport Department, Hong Kong Police Force, Highways Department, District Offices and various road public transport operators will be invited to attend the TMLG meetings. Every temporary traffic arrangement will be agreed by the TMLG before implementation. The TMLG will also take into account all relevant factors

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<sup>1</sup> 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 and Development.

<sup>2</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 \$90/m<sup>3</sup>), nor the cost to provide new landfills (which are likely to be more expensive) when existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

such as site restrictions, existing and future traffic conditions, pedestrian safety, access to buildings/shop-fronts and provision of emergency vehicular access in working out the temporary traffic arrangements.

19. Prior to the commencement of any major temporary traffic arrangements, we will visit and distribute leaflets to the relevant shop operators and building management companies/committees. We will also brief them on the nature and the expected duration of the works and the mitigation measures to be taken. We will modify the corresponding arrangements to accommodate suggestions from the public, the affected shop operators and the District Council as far as practicable.

## LAND ACQUISITION

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

## BACKGROUND INFORMATION

21. The North and South Kowloon SMP study was completed in February 1993 and the Review of Central and East Kowloon Sewerage Master Plans (RCEKSMP) study was completed in 2003.

22. In January 1994, the Finance Committee approved the upgrading of part of **171DS** as **173DS** “North and South Kowloon sewerage stage 1 – consultants’ fees and investigations” to Category A at an estimated cost of \$12.5 million for the engagement of consultants to undertake design and investigations for the stage 1 works. The consultancy commenced in February 1994 and was completed in December 1995.

23. In March 1995, the Finance Committee approved the upgrading of part of **171DS** as **192DS** “North and South Kowloon sewerage, stage 1, phase 1” to Category A at an estimated cost of \$143.0 million for the construction of the extension of To Kwa Wan sewage screening plant and the internal inspection and cleansing of sewers in Tsim Sha Tsui, Hung Hom and To Kwa Wan. The construction works commenced in March 1995 and were completed in March 1999.

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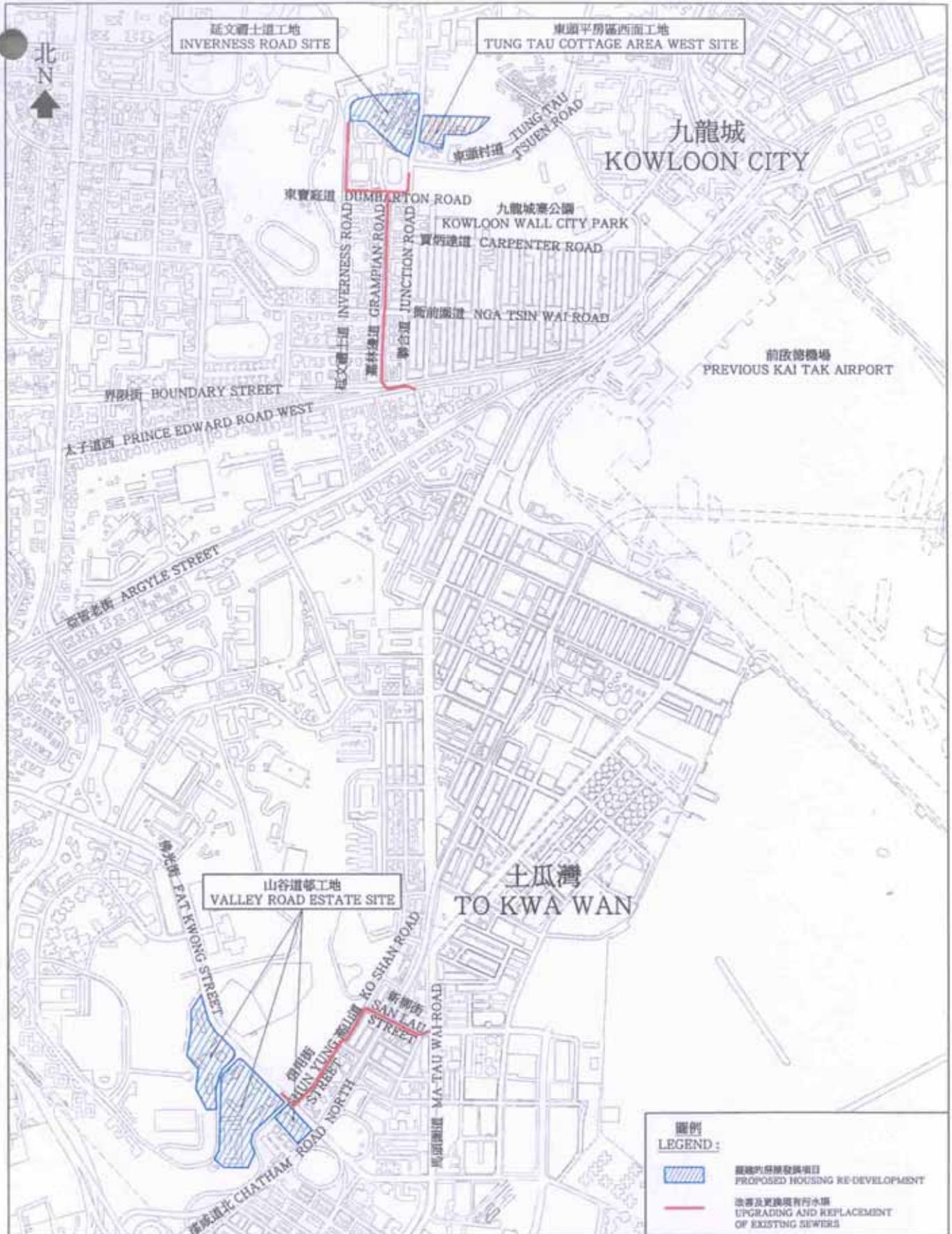
24. In July 1995, the Finance Committee further approved the upgrading of part of **171DS** as **199DS** “North and South Kowloon sewerage, stage 1, phase 2” to Category A at an estimated cost of \$481.0 million for the construction of pumping stations and trunk sewers in Tsim Sha Tsui, Hung Hom and To Kwa Wan. The construction works commenced in December 1995 and were completed in April 1999.

25. The remainder of **171DS** was retitled “North and South Kowloon sewerage, stage 2”. The scope of **171DS** was reviewed and finalised under the RCEKSMP. In November 2001, we engaged consultants to undertake investigation, traffic impact assessment and detailed design for the project at an estimated cost of \$0.7 million in MOD prices. We have charged this amount to block allocation Subhead **4100DX** “Drainage works, studies and investigations for items in Category D of the Public Works Programme”. We have substantially completed the detailed design.

26. The proposed sewerage improvement works will not involve any tree removal or planting proposal.

27. We estimate that the proposed works will create about 50 jobs (40 for labourers and another ten for professional/technical staff) providing a total employment of 1 000 man-months.

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<p>圖則名稱 drawing title                  工務計劃項目第4171DS號                  九龍北部及南部污水收集系統                  第2階段工程                  PWP ITEM NO. 4171DS                  NORTH AND SOUTH                  KOWLOON SEWERAGE,                  STAGE 2</p>	<p>繪圖 drawn                  C.W. CHAN                  日期 date                  18-03-2005</p> <p>核對 checked                  C.L. LEUNG                  日期 date                  18-03-2005</p> <p>批核 approved                  C.M. CHOI                  日期 date                  18-03-2005</p> <p>部門 office                  淨化海港計劃部                  HARBOUR AREA TREATMENT SCHEME DIVISION</p>	<p>圖則編號 drawing no.                  DSS/2005/008</p> <p>比例 scale                  N.T.S.</p> <p>保留版權 COPYRIGHT RESERVED</p>	<p>香港特別行政區政府渠務署                  DRAINAGE SERVICES DEPARTMENT                  GOVERNMENT OF THE                  HONG KONG                  SPECIAL ADMINISTRATIVE REGION</p>
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## 171DS – North and South Kowloon sewerage, stage 2

## Breakdown of estimates for consultants' fees

Consultants' staff cost		Estimated man-month	Average MPS* salary point	Multiplier <sup>(Note 1)</sup>	Estimated fee (\$million)
(a) Contract administration <sup>(Note 2)</sup>	Professional	--	--	--	0.7
	Technical	--	--	--	0.3
(b) Site supervision by resident site staff of the consultants <sup>(Note 3)</sup>	Professional	24	38	1.6	2.1
	Technical	156	14	1.6	4.5
					7.6

\*MPS = Master Pay Scale

## Notes

1. A multiplier factor of 1.6 is applied to the average MPS point to arrive at the cost of resident site staff supplied by the consultants. (As at 1 January 2005, MPS point 38 = \$54,255 per month and MPS point 14 = \$18,010 per month.)
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement. The construction phase of the assignment for this project will only be executed subject to Finance Committee's approval to upgrade **171DS** to Category A
3. We will know the actual man-months and actual costs only after the completion of the construction works.