

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

Head 704 – DRAINAGE

Environmental Protection – Sewerage and sewage treatment

344DS – Upgrading of Central and East Kowloon sewerage – packages 1 to 4

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **344DS**, entitled “Upgrading of Central and East Kowloon sewerage – phase 1”, to Category A at an estimated cost of \$304.7 million in money-of-the-day prices; and
- (b) the retention of the remainder of **344DS**, retitled “Upgrading of Central and East Kowloon sewerage”, in Category B.

PROBLEM

Existing sewers in the Central and East Kowloon areas do not have adequate capacity to cope with the increasing sewage flow generated in these areas.

/PROPOSAL

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to upgrade part of **344DS** to Category A at an estimated cost of \$304.7 million in money-of-the-day (MOD) prices for the sewerage upgrading works in the Central and East Kowloon areas.

PROJECT SCOPE AND NATURE

3. The scope of the part of **344DS** which we propose to upgrade to Category A comprises -

- (a) Upgrading of existing sewers and construction of new sewers of a total length of about 6.3 kilometres (km) in Kwun Tong, Kowloon Bay, Wong Tai Sin, Kowloon City, To Kwa Wan and Tsim Sha Tsui; and
- (b) Upgrading of seven existing dry weather flow interceptors¹ in To Kwa Wan, Kowloon City, San Po Kong, Choi Hung, Kowloon Bay and Ngau Tau Kok.

— A site plan showing the locations of the proposed works is at Enclosure 1.

4. We plan to start construction in January 2009 for completion in June 2012.

JUSTIFICATION

5. Environmental Protection Department commissioned a review entitled “Review of Central and East Kowloon Sewerage Master Plans (the Review)” in 1999, to assess the adequacy of the sewerage facilities in the areas. The Review was completed in August 2003 and recommended upgrading of some existing sewerage facilities as well as provisioning of new sewerage facilities to cater for the planned developments. The Review also recommended improving some existing dry weather flow interceptors due to their declining operational effectiveness.

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¹ Dry weather flow interceptor (DWFI) is a device which intercepts and diverts the polluted dry weather flow in a stormwater drain / channel to the sewerage system. In wet weather, the flow being higher would largely bypass the DWFI and discharge via the stormwater system. In some cases the DWFIs are deactivated during wet season.

6. Drainage Services Department employed consultants on 31 May 2007 to carry out the investigation, design and construction supervision of the sewerage upgrading works. The consultants have ascertained the updated situation by conducting an overall review on the existing sewerage facilities in Central and East Kowloon areas and confirmed the imminent need to upgrade these facilities to tie in with the future developments in the areas. Without improvement, local surcharging and overflow will occur, in particular at those sections downstream of future developments. We therefore propose to upgrade the existing sewers by new sewers of larger diameter and construct new sewers to provide adequate flow capacity. The existing dry weather flow interceptors will also be upgraded with adjustable weirs and flow regulators to enhance the performance in flow control.

FINANCIAL IMPLICATIONS

7. We estimate the project cost of the proposed works to be \$304.7 million in MOD prices (see paragraph 8 below), made up as follows –

	\$ million	
(a) Construction of	210.6	
(i) sewers	205.5	
(ii) improvement works for dry weather flow interceptors	5.1	
(b) Environmental mitigation measures	4.8	
(c) Consultants' fees for	30.5	
(i) contract administration	1.8	
(ii) site supervision	28.7	
(d) Contingencies	20.5	
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Sub-total	266.4	(in September 2008 prices)
(e) Provision for price adjustment	38.3	
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Total	304.7	(in MOD prices)
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A breakdown of the estimates for the consultants' fees by man-months is at Enclosure 2.

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

Year	\$ million (September 2008)	Price adjustment factor	\$ million (MOD)
2008 – 2009	0.5	1.00000	0.5
2009 – 2010	30.6	1.04000	31.8
2010 – 2011	58.4	1.08160	63.2
2011 – 2012	64.9	1.12486	73.0
2012 – 2013	47.1	1.16986	55.1
2013 – 2014	31.2	1.21665	38.0
2014 – 2015	25.3	1.26532	32.0
2015 – 2016	7.9	1.31593	10.4
2016 – 2017	0.5	1.36857	0.7
	266.4		304.7

9. 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 2008 to 2017. We will tender the proposed works under a re-measurement contract because of uncertainties concerning the existence and location of various underground utilities. The contract will provide for price adjustment.

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10. We estimate the annual recurrent expenditure arising from the proposed works to be \$60,000.

PUBLIC CONSULTATION

11. We consulted the Kwun Tong District Council Traffic and Transport Committee, the Yau Tsim Mong District Council Traffic and Transport Committee, the Wong Tai Sin District Council Traffic and Transport Committee and the Kowloon City District Council Housing and Infrastructure Committee on 27 February 2008, 6 March 2008, 8 April 2008 and 30 April 2008 respectively. Members supported the implementation of the proposed works.

12. We consulted the Legislative Council Panel on Environmental Affairs on 23 June 2008 on the proposed works. Members raised no objection to our plan to submit the funding proposal to the Public Works Subcommittee.

ENVIRONMENTAL IMPLICATIONS

13. The proposed sewerage works are not designated project under the Environmental Impact Assessment Ordinance. We have completed the Preliminary Environmental Review for the proposed works and concluded that the projects will not cause any long term adverse environmental impacts.

14. For short term impacts during construction, we will control noise, dust and site runoff to levels within the established standards and guidelines through implementation of mitigation measures in the works contract, such as the use of silenced construction plants and temporary noise barriers or acoustic shed to reduce noise, proper scheduling construction activities to minimise nuisance to the public, water-spraying to reduce emission of fugitive dust, and proper treatment of site run-off before discharge. We will also carry out close site inspection to ensure that these recommended mitigation measures and good site practice are properly implemented on site. We have included in paragraph 7(b) above a sum of \$4.8 million (in September 2008 prices) in the project estimate for implementation of the environmental mitigation measures.

15. We have considered during the planning and design stages ways to reduce the generation of construction waste where possible. For example, in addition to the need for meeting the hydraulic and traffic requirements, we have

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also designed the alignment of the proposed sewerage works in such a manner that excavation and demolition of existing structures will be minimized. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil for backfilling) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimise the generation of construction waste.

16. We will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approval plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

17. We estimate that the project will generate in total about 54 800 tonnes of construction waste. Of these, we will reuse about 19 600 tonnes (36%) of inert construction waste on site and deliver 32 000 tonnes (58%) of inert construction waste to public fill reception facilities² for subsequent reuse. In addition, we will dispose of 3 200 tonnes (6%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be about \$1.3 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne³ at landfills.)

HERITAGE IMPLICATIONS

18. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

/TRAFFIC

² Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

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 is likely to be more expensive) when the existing ones are filled.

TRAFFIC IMPACTS

19. We have completed a traffic impact assessment (TIA) for the proposed works and worked out mitigation measures to minimise possible disruption to traffic during construction of the works. The TIA has concluded that the proposed works would not cause any significant traffic impact. We will establish a Traffic Management Liaison Group (TMLG) under the contract and invite representatives from Transport Department, Hong Kong Police Force, Highways Department, the relevant District Offices, public transport operators and utility undertakings to attend the TMLG meetings, and every temporary traffic arrangement will have to be agreed by TMLG before implementation. The TMLG will also take into account relevant factors such as site restrictions, traffic conditions, pedestrian safety, access to buildings/shop fronts and provision of emergency vehicular access in considering the temporary traffic arrangements.

20. During construction, we will maintain smooth traffic flow through implementing temporary traffic management measures as appropriate. We will display notice boards on site to explain the reason of temporary traffic arrangements and indicate the expected completion date of the concerned section of works. We will also employ trenchless methods to construct the sections of sewers at major road junctions to avoid affecting the busy traffic there. In addition, we will set up telephone hotlines for public enquires related to the proposed works.

LAND ACQUISITION

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

BACKGROUND INFORMATION

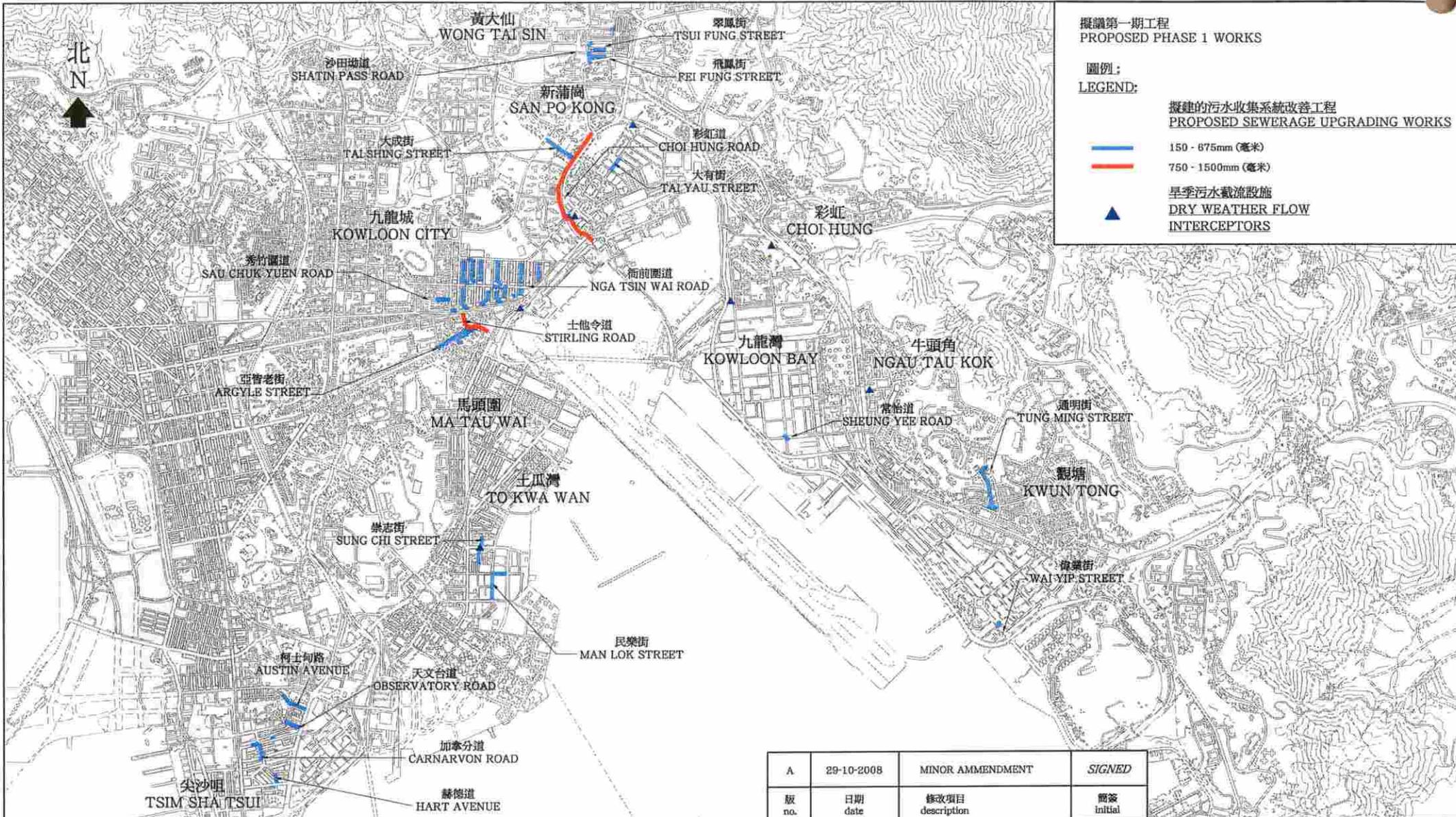
22. In September 2005, we upgraded the package 1 works of **337DS** “Upgrading of Central and East Kowloon Sewerage” to Category B as **344DS** “Upgrading of Central and East Kowloon sewerage – package 1”. In September 2006, we upgraded the package 2 and 3 works of **337DS** entitled “Upgrading of Central and East Kowloon sewerage – packages 2 & 3” to Category B, and the package 4 works of **337DS** to Category B as **356DS** “Upgrading of Central and East Kowloon sewerage – package 4”. In May 2008, we merged these four packages as a single project **344DS** “Upgrading of Central and East Kowloon sewerage – packages 1 to 4” to facilitate better coordination and programming of works.

23. In May 2007, we engaged consultants to undertake site investigation, surveys, traffic impact assessment and detailed design for the proposed sewerage upgrading works at an estimated cost of \$5.1 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 of the proposed phase 1 works mentioned in paragraph 3 above. These phase 1 works are prioritised due to their environmental benefits as well as the need to tie in with other interfacing projects to minimise repeated road openings. The remainder of **344DS** proposed for retention in Category B mainly comprises the upgrading of about 15 km of sewers in Kwun Tong, Ngau Tau Kok, Choi Hung, San Po Kong, Ma Tau Wai and Hung Hom. Planning and design of the remainder is in progress.

24. The proposed works will not involve any tree removal or planting proposal.

25. We estimate that the proposed works will create about 141 jobs (115 for labourers and another 26 for professional/technical staff) providing a total employment of 5 360 man-months.

Environment Bureau
December 2008



擬議第一期工程
PROPOSED PHASE 1 WORKS

圖例:
LEGEND:

擬建的污水收集系統改善工程
PROPOSED SEWERAGE UPGRADING WORKS

150 - 675mm (毫米)
750 - 1500mm (毫米)

旱季污水截流設施
DRY WEATHER FLOW INTERCEPTORS

圖則名稱 drawing title

工務計劃項目第344DS號
九龍中部及東部污水收集系統改善工程 — 第1至4部分
PWP ITEM NO. 344DS
UPGRADING OF CENTRAL AND EAST KOWLOON SEWERAGE - PACKAGES 1 TO 4

A	29-10-2008	MINOR AMMENDMENT	SIGNED
版 no.	日期 date	修改項目 description	簡簽 initial
繪畫 drawn	ORIGINAL SIGNED	C.W. CHAN	日期 date 13-08-2008
核對 checked	ORIGINAL SIGNED	C.M. CHONG	日期 date 13-08-2008
批核 approved	ORIGINAL SIGNED	W.K. NG	日期 date 13-08-2008
部門 office	顧問工程管理部 CONSULTANTS MANAGEMENT DIVISION		

圖則編號 drawing no. 比例 scale

DCM/2008/028A N.T.S.

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DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE
HONG KONG
SPECIAL ADMINISTRATIVE REGION

Enclosure 2 to PWSC(2008-09)47

344DS – Upgrading of Central and East Kowloon sewerage – packages 1 to 4

Phase 1

Breakdown of estimate for consultants' fees

Consultants' staff costs		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for contract	-	-	-	0.3
	administration (Note 2)	-	-	-	1.5
(b)	Site supervision by resident site staff	133	38	1.6	12.9
	employed by the consultants (Note 3)	498	14	1.6	15.8
Total consultants' staff costs					30.5

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to arrive at the full staff costs, including the consultants' overheads and profit, for staff employed in the consultants' offices. MPS points 38 and 14 are used as the average MPS salary points for professionals and technical staff respectively. (As at 1 April 2008, MPS point 38 = \$60,535 per month and MPS point 14 = \$19,835 per month)
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the investigation, design and construction supervision of the project.
3. We will only know the actual man-months and actual costs after the completion of the construction works.