

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

Head 704 – DRAINAGE

Environmental Protection – Sewerage and sewage treatment

357DS – Sewage interception scheme in Kowloon City

Members are invited to recommend to Finance Committee the upgrading of **357DS** to Category A at an estimated cost of \$700.3 million in money-of-the-day prices for implementing a sewage interception scheme in Kowloon City.

PROBLEM

Sections of the existing trunk sewer along Prince Edward Road East, Olympic Avenue and Sung Wong Toi Road are having capacity problem and will not be able to handle the increasing sewage flow generated from planned developments in the areas of Kowloon City, Lok Fu, San Po Kong, Wong Tai Sin, Ma Tau Wai and To Kwa Wan.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to upgrade **357DS** to Category A at an estimated cost of \$700.3 million in money-of-the-day (MOD) prices for the sewage interception scheme in Kowloon City.

PROJECT SCOPE AND NATURE

3. The scope of **357DS** comprises -
- (a) construction of two new sewage pumping stations at the edge of the Kai Tak Development area adjoining Prince Edward Road East and Olympic Avenue;
 - (b) construction of about 1.5 kilometres of twin rising mains and gravity sewers along the edge of the Kai Tak Development area to To Kwa Wan Road;
 - (c) construction of about 200 metres (m) of gravity sewers at To Kwa Wan Road; and
 - (d) ancillary works such as landscaping works.

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

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

JUSTIFICATION

5. The 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 improve the existing sewerage and cater for planned developments.

6. The Review identified, among others, that the performance and capacities of the existing trunk sewers along Prince Edward Road East, Olympic Avenue and Sung Wong Toi Road are constrained by the flat and inverted gradients along the sewers. Surcharging and siltation inside the sewers often occur. The situation will be further aggravated with added flows generated from future developments. To improve the hydraulic performance of the sewer system, the Review recommended diverting the sewage flow from the upstream catchments covering areas of Kowloon City, Lok Fu, San Po Kong and Wong Tai Sin, via a sewage interception scheme directly to the downstream sewerage in Ma Tau Kok. The intercepted sewage will be conveyed to the To Kwa Wan Preliminary Treatment Works via new sewage pumping stations and associated rising mains and sewers within the Kai Tak Development area.

7. The Drainage Services Department employed consultants to carry out investigation and design of the proposed works in September 2007. The consultants have conducted an overall review of the sewerage in the whole catchment including Kowloon City, Lok Fu, San Po Kong and Wong Tai Sin areas and confirmed an imminent need to implement the sewage interception scheme in Kowloon City. Without improvement, the surcharging and siltation problems will aggravate, and overflow will occur, in particular at downstream sewers. We therefore propose to implement the sewage interception scheme as soon as possible to address the imminent problem.

FINANCIAL IMPLICATIONS

8. We estimate the project cost of the proposed works to be \$700.3 million in MOD prices (see paragraph 9 below), made up as follows –

	\$ million
(a) Construction of two sewage pumping stations	377.5
(i) civil engineering works	275.9
(ii) electrical and mechanical works	101.6
(b) Construction of rising mains and sewers	134.2
(c) Ancillary works including landscaping works	7.2
(d) Environmental mitigation measures	9.0
(e) Consultants' fee	5.5
(i) contract administration	3.0
(ii) management of resident site staff	2.5
(f) Remuneration of resident site staff	52.8

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		\$ million
(g)	Contingencies	58.6
	Sub-total	644.8 (in September 2008 prices)
(h)	Provision for price adjustment	55.5
	Total	700.3 (in MOD prices)

— A detailed breakdown of the estimates for the consultants' fees and resident site staff costs by man-months is at Enclosure 2.

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

Year	\$ million (September 2008)	Price adjustment factor	\$ million (MOD)
2009 – 2010	32.8	1.03500	33.9
2010 – 2011	153.9	1.05570	162.5
2011 – 2012	206.0	1.07681	221.8
2012 – 2013	129.0	1.09835	141.7
2013 – 2014	64.4	1.12032	72.1
2014 – 2015	35.3	1.15113	40.6
2015 – 2016	23.4	1.18566	27.7
	<u>644.8</u>		<u>700.3</u>

10. 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 2009 to 2016. 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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11. We estimate the annual recurrent expenditure arising from the proposed works to be \$5.7 million. The estimated impact on fees and charges on sewage services is immaterial as the annual recurrent expenditure will only be \$0.3% of the total operating expenditure of sewage services.

PUBLIC CONSULTATION

12. We consulted the Housing and Infrastructure Committee of Kowloon City District Council on 26 June 2008. The Committee supported the implementation of the proposed sewerage works.

13. We consulted the Legislative Council Panel on Environmental Affairs on 21 January 2009 on the proposed works. Members raised no objection to our plan to submit the funding proposal to the Public Works Subcommittee. Nevertheless, some Members requested the Administration to provide supplementary information on the work schedule of sewerage upgrading projects to be carried out in Kowloon and how the road opening works of different departments are coordinated. We submitted an information note to Panel Members on 18 May 2009.

ENVIRONMENTAL IMPLICATIONS

14. The proposed sewage pumping stations within the Kai Tak Development area are designated projects under the Environmental Impact Assessment Ordinance (EIAO). We obtained an Environmental Permit (EP) for the construction and operation of the pumping stations on 6 October 2008. We shall implement the mitigation measures set out in the EP. The proposed rising main and gravity sewerage works are not designated projects under EIAO and will not cause long term environmental impacts.

15. We have included in paragraph 8(d) above a sum of \$9.0 million (in September 2008 prices) in the project estimates for implementation of the environmental mitigation.

16. For short term impacts during construction, we will control noise, dust and site run-off to levels within the established standards and guidelines through implementation of mitigation measures, such as the use of silenced construction plants and temporary noise barriers or acoustic shed as far as possible to reduce noise, water-spraying to reduce emission of fugitive dust, and proper

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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.

17. We have considered in the planning and design stages ways to reduce the generation of construction waste where possible. For example, while making due consideration of hydraulic requirements, we have designed the alignment and depth of the proposed sewerage in such a manner that excavation and demolition of existing structures would 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 minimize the disposal of inert construction waste to public fill reception facilities¹. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

18. 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 approved 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.

19. We estimate that the project will generate in total about 63 200 tonnes of construction waste. Of these, we will reuse about 6 100 tonnes (10%) of inert construction waste on site and deliver 50 800 tonnes (80%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 6 300 tonnes (10%) of non-inert construction waste at landfills. The total cost for accommodating the construction waste at public fill reception facilities and landfill sites is estimated to be \$2.2 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne² at landfills).

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¹ 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.

² 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.

HERITAGE IMPLICATIONS

20. 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 IMPACTS

21. 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 sewers. The TIA has concluded that the proposed works would not cause any significant traffic impact. The majority of the works site areas are within the Kai Tak Development boundary, hence the proposed works have virtually no impact to the existing traffic in Kowloon City. 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.

22. 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. In addition, we will set up telephone hotlines for public enquires related to the proposed works.

LAND ACQUISITION

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

BACKGROUND INFORMATION

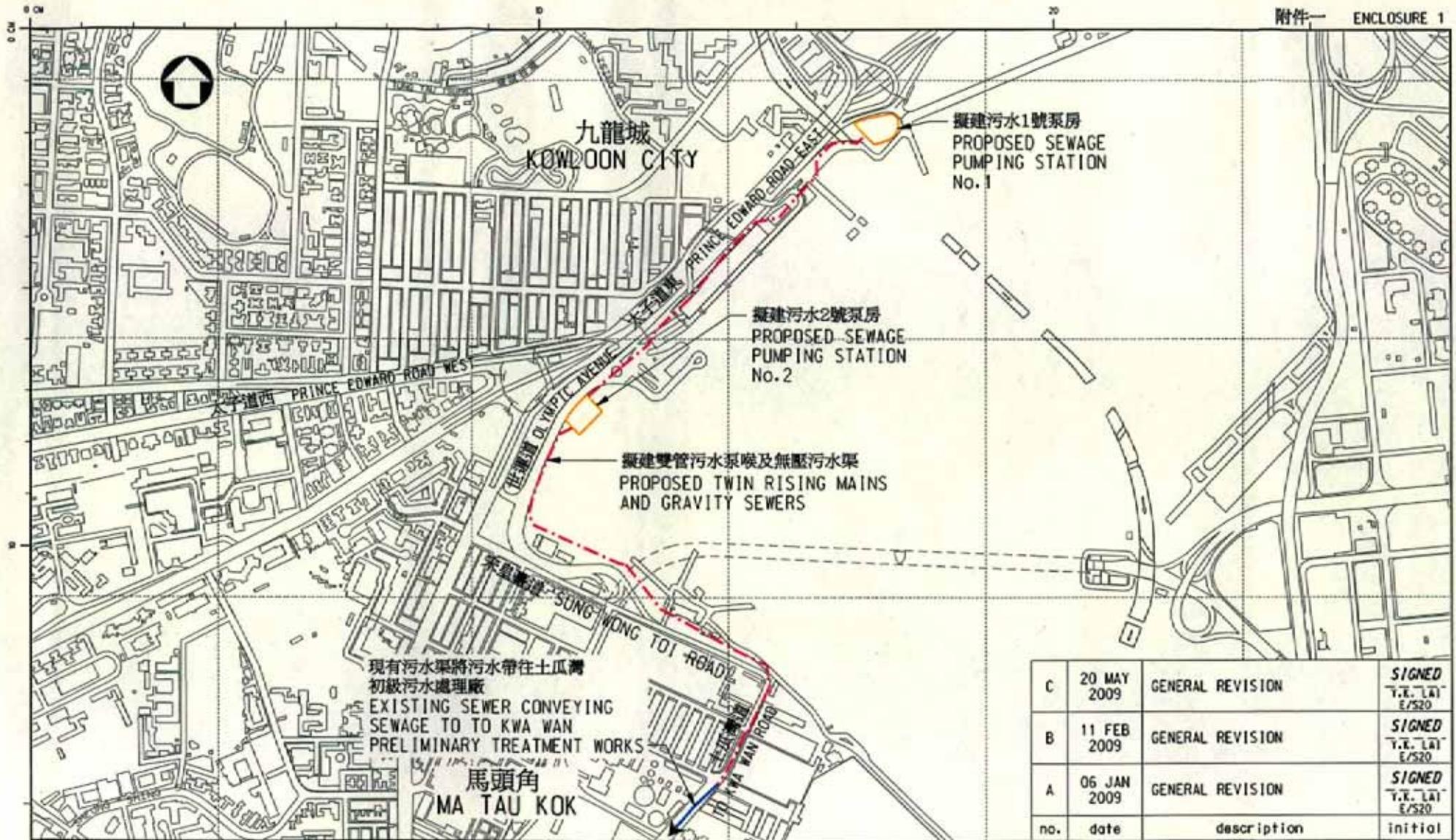
24. In February 2007, we upgraded **357DS** to Category B.

25. In September 2007, we engaged consultants to carry out site investigation, surveys, traffic impact assessment and preliminary design for the proposed works at an estimated cost of \$3.8 million in MOD prices. In June 2008, we engaged consultants to carry out detailed design for the proposed works at an estimated cost of \$4.4 million in MOD prices. We have charged these amounts for the two consultancies 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 works.

26. The proposed works will not involve any tree removal proposal. We will incorporate proposals of planting and green roofs for the pumping stations as part of the project, including estimated quantities of about 45 trees and 4 000 m² of grassed area.

27. We estimate that the proposed works will create about 354 jobs (284 for labourers and another 70 for professional/technical staff) providing a total employment of 11 500 man-months.

Environment Bureau
May 2009



C	20 MAY 2009	GENERAL REVISION	SIGNED Y. K. LAI E/520
B	11 FEB 2009	GENERAL REVISION	SIGNED Y. K. LAI E/520
A	06 JAN 2009	GENERAL REVISION	SIGNED Y. K. LAI E/520
no.	date	description	initial

drawing title

工務計劃項目 357DS -
九龍城污水截流計劃
PWP ITEM No. 357DS -
SEWAGE INTERCEPTION SCHEME IN KOWLOON CITY

drawn	SIGNED Y. K. FAN	date	21 OCT 2008
checked	SIGNED Ir Y. K. LAI	date	20 NOV 2008
approved	SIGNED Ir Y. F. KAN	date	20 NOV 2008
office	SEWERAGE PROJECTS DIVISION		

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DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE
HONG KONG
SPECIAL ADMINISTRATIVE REGION

357DS – Sewage interception scheme in Kowloon City

Breakdown of the estimates for consultants' fees and resident site staff costs
(in September 2008 prices)

Consultants' staff costs		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees (\$ million)	
(a)	Consultants' fees for contract administration (Note 2)					
	Professional	-	-	-	2.0	
	Technical	-	-	-	1.0	
				Sub-total	3.0	
(b)	Resident site staff costs (Note 3)	Professional	281	38	1.6	27.2
		Technical	885	14	1.6	28.1
				Sub-total	55.3	
Comprising –						
(i)	Consultants' fees for management of resident site staff				2.5	
(ii)	Remuneration of resident site staff				52.8	
				Total	58.3	

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (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 design and construction of the project. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade **357DS** to Category A.
3. We will only know the actual man-months and actual costs for site supervision after the completion of the construction works.